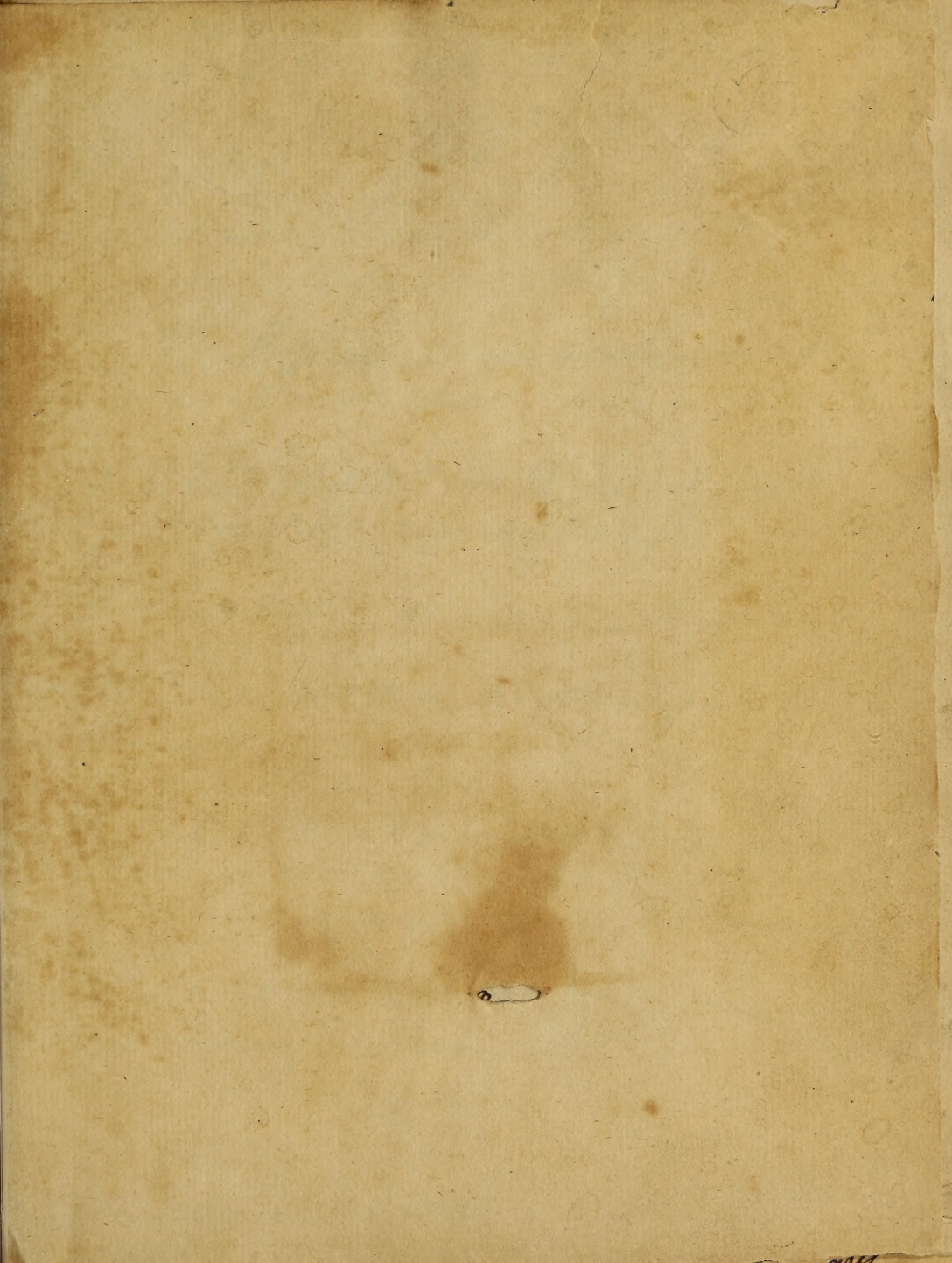




Alexander Monroe Sr
Lectures on Wounds
Christ. 1758 Taken
by John Hamilton
Smith.

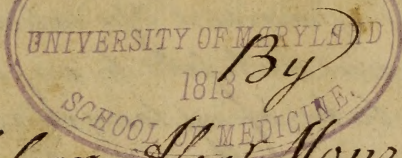
John Crawford,

M. D.



Crawford

A Treatise on Wounds. 1.



Professor Alex. Monro Senior.

Medicine is commonly divided
into five parts. —

I. ΦΥΣΙΟΛΟΓΙΚΗ, or an exact
Knowledge of the human Body.

II. ΠΑΘΟΛΟΓΙΑ, or History of Diseases.

III ΣΗΚΕΙΩΤΙΚΗ Or the Signs of these
Diseases.

IV. ΠΡΟΒΙΝΗ Or means of preserving Health.
These we must be acquainted with, and
understand before we can pretend to venture
on the

V. ΘΕΡΑΠΕΥΤΙΚΗ Or method of curing
and healing diseases, which is performed by
ΔΙΕΤΗΤΙΚΗ, or ordering a right Diet by
Pharmacy

Pharmacy or Prescription of ~~the~~ Medicines
and by Surgery or manual operation. This
last is the province that falls to my share, w^{ch}
would appear to be of as long standing
if not more ancient than any part of medi-
cine: For we see by the Antediluvian History
that very soon after the Creation Fends
animosities and Envy possess'd the hearts
of men, hence Trajines murders and petty
Wars ensued, by which the parties might
have been exposed to external Injuries, for
which nature prompts people to seek or ap-
ply some Remedy, that is surgery, tho' per-
haps very imperfect, must have been ex-
ercis'd. While otherwise the Inhabitants of
the Earth liv'd so temperately in such a
moderate climate and serene air that they
arriv'd to those prodigious ages of which
the scripture gives us an account some
of them liv'd to without being obnoxious
to those diseases which this day so much
infest mankind.

Very soon after the flood we find the dif-
ferent nations that were necessarily formed
by the Confusion of Tongues at Babel
Differing

differing with their Inhabitants, joining with their Neighbours, and calling in all the assistance they can get or power they can make to oppose one another, than forming numerous Armies and fighting pitched Battles and certainly there must have been People appointed to take care of the sick that suffered in these Battles, so (for it seems probable) that surgery was exercised in these earliest times, but since we have no account of particular persons who applied themselves to this art let us examine what we can learn of such from the Heathen History and Fables.

Chiron the Centaur seems to be the first taken notice of, tho his scholar Asclepius, son of Appollo, who is said to have lived a little time before the Trojan War, was the most renowned for his great Skill deified and is to this day commonly known as the Patron of medicine. Next we come to those who were employed in the Trojan War. The two most famous are Machaon & Podalirius sons of Asclepius as Homer Iliad 2. speaks of them Dopes Translation page 390.

To these his skill the Parent God imparts,
 Divine Professors of the healing Arts.

A specimen of machaon's Practice we
 saw Head 4th when called to mendacus wound-
 ed Pope 250 after drawing the Arrow.

He suck'd the Blood & sovereign Balm infused
 which Chiron gave Esculapius us'd.
 We may however observe that several other
 Princes and Heroes were acquainted with
 and practised surgery, Achilles the Hero of
 the Poem was Chiron's pupil as Head the
 XI Eurypylus wounded desires Patroclus's
 assistance, begs him to apply Balsam.

Such as sage Chiron sire of Pharmacy
 Once taught Achilles, & Achilles the

His intimate dear friend Patroclus like-
 wise performed Surgical Operations &
 applied dressings as in the same Head 890.

There stretch'd at length the wounded Hero lay
 Patroclus cut the forked steel away.

Then in his hands a better steel he bruise'd
 The wound he wash'd, & sleepick juice infus'd
 The

The closing Flesh that Instant ceas'd to glow
The wound to torture and the Blood to flow.

We see liberos Eupyrus in the same Book
giving Salvolus Directions how to manage his wounds
693.

Andrew thus exactly Sast
with lukewarm water wash the Gore away
with healing Balms the raging smart allay

After the Destruction of Troy we know little
of the Professors of this art, till the great, the Divine
Hippocrates, who was descended from Hercules
and Asculapius, being in a ~~linear~~ direct descent the
20th from the one, and the 18th or 19th from
the other. He is the father of medicine, the
first that compiled it, and brought it into
Order and laid down to his posterity certain
unerring Rules confirmed by experience.

In his works there are several Treatises
of Surgery, as of Ulcers, Fistulas, Fractures
Lacerations, wounds of the head &c and thro'
the whole there are a great number of precepts
and Observations interspersed whoever
desires

desires a more compleat History of this illustrious Parent of Physick may consult Le Clerc's History de la medecine, or Fallopius in the preface to his Book, De Capitis Vulneribus.

All Hippocrates's Family had been for several ages before him and continued after his death to be Physicians, but either did not write or else their works were lost, before our days the Greek Physicians whose works have been transmitted to us and who frequently treat of Surgery also are Aegineta, Paulus Oribasius Oetrices Fallopius, and the great Galen, among the Romans (besides the Latin Hippocrates) is the only author who he mentions several others famous in his day in the preface to the 7th Book of medicine, to wit Triphon Cnelpustis and meges: But there is no other monuments of them. He likewise in this preface tells us that after Hippocrates several Egyptians Surgeons were very famous particularly Philoxenus who he calls a great author that has most diligently treated of this subject in several volumes, Gorgiasus Dostrales the two Chirones Apollonii with some

some others whose labours have perished, are likewise named by him.

About the 6th Century after our saviour all Europe was overrun by the Barbarous Goths and Vandals; and all Literature and liberal arts were very near abolished; among the rest medicine suffered very much, only in Spain Asia and Africa, some Arabians becoming masters of the Old Libraries still kept up the knowledge of medicine in those parts. The most famous of them are Avicenna Averrhoes, Rhazes and Albucasis who treat likewise of surgery.

About the 9th Century Learning began to spread again and medicine as a part of it to flourish, but all the authors were so much begot to the opinions of Galen. Of these Arabians that their authority ipso facto was enough even to Balance matter of fact.

In the 14th Century the Chemists began violently to oppose the Galenical Doctrines. Each of these sects had their followers and admirers; who were entirely wedded to the opinions of their Patron, and thus

thus they continued in a state of schism till of late that the world thought fit to thro' of that slavery of implacable faith, & so hearken to nothing but what was founded on experiments or just sound reasoning.

There have been such numbers of authors that have wrote on surgery these several years and ages bygone that it would consume too much time, and that to very little purpose to give you a Catalogue of their works, since at Leisure in Vander Dindens De Scriptis medicis you may see them; and that I'll be obliged to mention the most considerable of them in this following discourse.

This short sketch of the History of surgery I think sufficient for our purpose. If you desire a fuller account of it consult Aesculap. Severinus De Efficac. medicam. Lib. 1. Pars prima, Cap. 2. De vano Chirurgor. Statu. The very Designation of this Art *Χειρσπρεια*, which might be applied to any work or operation of the hand, but is appropriated to this part of medicine sufficiently denotes the

Essentiality

Excellency of it. Then let us observe how many Princes and Heroes have exercised it. For besides those already mentioned, which at least declares the practice in Romans days, History furnishes us with a great many. One particular that I shall mention is of our own King James the 1st one of the best Princes that ever swayed our Sceptre. Buchanan towards the end of his life tells us, that one thing he greedily sought in from Ancient Custom, most studiously to treat wounds, which skill was of old common to all our Scottish nobility.

Then let us consider what great honour has been done to the Professors of this practical Science? Hippocrates had Statues erected for him at the publick charge; Galen was invited by princes to their Courts; then the daily experience we have of the numbers that are saved from the jaws of death by it sufficiently shews its usefulness.

Homer Iliad XI. makes one of his Heroes speak thus of Machaon, who as far as we can learn was only employed in Surgery
 Popes Homer 636.

A wise Physician should our wounds to heal
Is more than Armies to the Common Weal.

Hence we may at least conclude that the prosecution of this Study is neither dishonourable nor unskilfull. Surgery as it is a methodical application of the hand for removing diseases has for its subject and Remedies only these maladies that are subject to our Senses. But as the right understanding of these is absolutely necessary for knowing and judging internal Diseases, and that in Chirurgical cases the patient very often is committed to the Surgeons care entirely or a Doctor cannot be had.

He cannot be a good Physician who is not a good Surgeon, who is not pretty well acquainted with the other parts of medicine nay perfectly master of some of them.

Wherefore in the following discourses I shall not so strictly confine myself to the topical application but likewise hint at the Internal Remedies as far as I shall think it necessary for surgeons to be acquainted with them in several Cases.

Thus

This Practical Science is divided into four Branches.

1. Synthesis, or Joining and mending parts that are contrary to the design of nature separated, as in curing of wounds, Reducing Luxations, Setting of Fractures.

2. Diuresis, or dividing and separating those parts, that by their union are hurtful, as in perforating the anus or Vulva of children separating of members grown together after Burning.

3. Excision, or the taking away what is superfluous or noxious, as in amputating a sphacelated member, extracting Bullets lodged within the Body, letting out extravasated Blood, water or pus.

4. Prosthesis or making up a want or supplying a defect, as fitting timber Legs to Stumps setting in artificial Eyes or Teeth.

To perform these things right a Surgeon must besides being acquainted with all the parts of medicine, particularly anatomy have according to Felsus in his preface to his

his Lib. 7. these other Qualifications a Strong steady hand that does not shake using both right and left, a Distinct Sharp sighted Eye, not lamerous or so much given to Pity that he cannot go thro his work, or moved with the patients crys so as either to make too great haste or cut less than is necessary, but ought to do every thing as if he were not at all affected with the patients Complaints.

A regular Surgeon thus qualified who would practise right, ought before he was about to cure to be thoroughly acquainted with the History of the Disease in which he is to have regard to the Patients Sex whether man or woman to his age if young middle aged or Old to his Constitution and his former ways of living and inform himself how the disease increased if there was any known cause for it, then to consider the nature of it, and the place it is in, and the Effects it has produced which knowledge is called Diagnosis whence the Prognosis or what the consequence will be.

will be must be drawn and then see what method of cure is pointed out which is termed the Indication.

For making this way of procedure more clear let us suppose the case of one with a broken leg, and the appearance of a Gangrene from a fall, the supposition and the constitution of the Patient known are sufficient for the Diagnosis.

The Prognosis follows from this, for example if it is a woman with child an old decrepit person one labouring under a consumption or Dropsy: There is much less hope than if it was a young well blooded healthy Fellow, or if the Gangrene seems to increase very fast, and the Bones are sore shattered, the Prognosis must be much more unfavourable than if it was only a simple Fracture and the Gangrene very slow.

The Indication must vary also according to the Diagnosis; If the Patient was used to great quantities of strong liquors debarring

debarring him entirely the use of them, might be destructive, whereas to others not accustomed to them would be of the worst consequence.

A young Plethoric person would require to be bled plentifully, an Old emaciated feeble Patient would need cordials; If the Gangrene spreads very fast and inclines to a Spinaelus, amputation will be necessary, whereas otherwise Scarifications and Topical Applications would perform the cure.

By glancing at these few of a vast number of particular cases that might be supposed and do daily happen in practice, one cannot be convinced of the vast advantage of a Rational Surgeon, whose practice is conform and adapted to the different exigencies of his Patient, above any mere Empirick, who pretends to any infallible Remedy for a particular Disease, without dipping further in the affair than that the Disease is ranked in such a class which he believes his Arcanum will soon drive away wherever lodged.

When once the preparation to be performed is

is determined the Rule is to do it quickly without however neglecting what is necessary for hurrying, easily pulling the Patient to as little pain as possible, yet not sparing him to his cost, safely, the Surgeon is not to be too venturesome or hardy, yet to go about his duty duly and regularly.

Of Wounds in General

An wound according to Aquapendent Lib. 2. Cap. 1. is a solution of continuity made or union of the parts divided by some External Instrument in a soft part. S. Mead's Book 3. Cap. 1. adds to this Definition - cutting Instrument. In my opinion Boerhaave Aphorism 1115, defines it the most exactly of any and nearest to the common acception.

An wound says he is a Recent Bloody solution of unity, in a soft part made by a hard and sharp Instrument By its Characters of

16. of recent and bloody, 'tis distinguished from an ulcer being in a soft part it differs from a Fracture. being inflicted by a sharp Instrument, hinders it to be confounded by a Contusion.

Now since our whole Body is made up of an almost infinite Series of vessels, and their contain'd circulating fluids, and that the right performance of all our Actions whether the vital, natural or animal, depends on the right Tone of the Vessels and due circulation of the fluids; hence it follows that the Effects of a wound must be the Lesion of the action of some part because by it there must be vessels destroyed and Liquids effused; and thence the first distinction of wounds is taken Voy. into deadly and not deadly. For if any part is hurt, by which Lesion the circulation may soon be put an end to, or the patient die; 'tis called a mortal or deadly wound.

Some of these are absolutely or inevitably so as those of the Cerebellum eight pairs of Nerves, those that penetrate into the Cavities of

of the Heart. Others left to themselves are not assisted by Art, might kill the Patient but if treated skilfully are not of so ill consequence, for Example the Cubital Artery cut runs under soon by the effusion of Blood put an end to the life of the Patient, if no means were employed to hinder it; but by compression or Ligature this mischief may be prevented.

All other wounds come under the denomination of not deadly, yet by the neglect of either Surgeon or Patient, these may become of the other sort; as for instance, the Surgeon may by too tight Bandage, or the Patient by Debauches bring on a mortification where there was a slight simple wound.

The not deadly wounds are divided into several Classes according to the different parts affected. Hence we observe Authors dividing their Treatises of wounds into so many Chapters as there are parts to be hurt which are the common Teguments, Muscles, Arteries, Veins, Nerves, Tendons, Membranes and Ligaments.

(The

The second distinction of those wounds, is from the Weapon that inflicted them, and the manner of its being applied, hence they are said to be *Cuts Punctures & Laceration*.

The third difference taken notice of, is in the wound itself, first as to its figure, whether straight crooked or angular; 2^d of its magnitude, either large or little, long or short, deep or superficial.

4th They observe the accidents that attend it, As Inflammation, Gangrene, Hemorrhage Pain, extraneous Bodies or Poison remaining in it. For these distinctions of wounds see *Celsus Lib. 5. Cap. 26. Sect. 5. And Aquezpendent Lib. 2. Cap. 1.*

Some authors have to very little purpose racked their Brains to make still a great many subdivisions, which serve for nothing but to Burthen ones memory with a great many harsh uncouth words, and therefore I forbear overhauling them and shall proceed according to the method proposed in the Introduction to the Diagnosis of wounds, and examine the Observable Phenomena of the several sorts that

that may be inflicted, beginning with the most simple, and so orderly going on to the more complicated.

Supposing then an wound apparent to the eye, was given to a healthsome strong man without hurting any considerable artery, nerve, or tendon, what appearances would it have from first to last. The divided parts - would soon be retracted and separated from one another, which is owing to the natural elasticity and spring of all the parts of our Body whereby they shorten themselves, whenever the stretching cause or Resistance to their Contraction is removed: Immediately after this separation of the lips of the wound, the blood rushes out impetuously but gradually stops of itself; the Reason of which is that the whole Body being a Congeries of Vessels a wound cannot be inflicted without cutting some of them. - Therefore their Liquids run out very quickly at their open mouths, till once by their natural contraction, they are drawn back under the surrounding parts, and straiten their own mouths consequently the Issue of the contained Fluids

Fluids must be stopt, after which the cavity of the wound appears covered with a Bloody Crust which is nothing but the coagulated

Blood sticking still in the mouths of the Vessels; and a then redish watery humour comes lithering out, that is the vessels are so much contracted in their Diameters that they cannot transmit Blood nor any liquor of grosser parts than this Humour; These Phenomena happen very soon upon the wound; but then sometime after the lips of the wound begin to be inflamed, pained swelled and retarded natural consequences of the straitning the mouths of the Vessels, and Obstruction of their Liquids in them.

At the same time that the lips of the wound are thus affected, the Patient labours under a Feverish disposition, and its attendants Heat and Thirst: Which is easily accounted for from the Obstruction of the Vessels at the lips of the wound and thence the velocity of the Blood increased in the other vessels besides the pain of the wound may by stimulating the vessels to a more than ordinary

Ordinary Contraction, increases this more rapid motion of the fluids, which we call a Fever.

The heat is occasioned by the attrition of the Liquids and Solids, and the thirst by dissipation of part of the Liquids and the diminution of those that remain.

Then the third or fourth day sooner or later Pus begins to appear on the wound.

This Liquor is described by Hippocrates, in his Praenot. by Celsus Lib. 5. Cap. 26.

§ 20. Thus a thick white Liquor more glutinous than Blood or sanies, smells little or none, and is of an equal consistence.

This production of Pus is the Effect of the Inflammation at the lips of the wound and the fever, by which the Broken and Bruised Extremities of the Vessels are separated, mixed with the Effused Liquids, and by the heat of the part concocted into that homogeneous Liquor Pus, which is just now described.

As pus forms the other Symptoms of Fever Inflammation and pain abate or quite go off because now the Obstructed matter

22. matter is evacuated and the circulation again free.

If nothing hinders, the Extremities of the Vessels, will by the impulse of their contained Liquors be propelled and stretched out, while there is an Addition made to them from the Liquors themselves, the Extremities of these protruded Vessels appear like so many prominent papillæ which twisting with one another form a Plexus or network that sprouts out every where from the sides towards the Centre and gradually fills up the wound; while the Extremities of this network at the lips not being capable of stretching further, or hardening by compression forms a bluish white membrane which insensibly as the wound fills up gradually covers it over and is called the *Licatrix*.

Thus having examined the whole progress of a most simple wound which any of you may easily Observe to be exactly just let us likewise consider the consequences of wounds when other soft parts are wounded

wounded and first of an artery, since a muscle I mean the fleshy part of it is not attended with any Phenomena but what are already discoursed of.

If it is a small artery not very near the heart that is quite cut through its own Contraction will bring under the surrounding parts straiten its Orifice ~~and~~ stop the efflux of its Liquids & therefore it will be no more than such a simple Wound as we have already described, but if such an Artery is not quite cut asunder, but only transversely opened, or if it runs very near a bone, tho' it is quite dissected, it may pour out a vast quantity of Blood, because while the fibres of the superior part by contracting recede from one another, these below are still kept firm, & therefore the Orifice of the Artery enlarges, hence we see & hear of so many Instances of Hemorrhages after a small wound, where we are very sure there is no large Artery, As for Instance, A Gentlewoman of this town, a few years ago, accidentally had a small sharp splinter of timber run into her finger which with the point of a needle she endeavoured to get out and happened to wound the Artery near the point of the finger, upon w^{ch} a considerable Hemorrhage ensued, and continued in spite of all the Astringent and Caustic Medicines that could be applied; the Patient was with Child at the same time and began to be afraid the loss of blood might have endangered her self and Child, wherefore my father

24. Father who was the Surgeon employed resolved to enlarge the wound that he might come at the mouth of the Artery & Ligate-
ture or medicines, and in order to that applied the Tournequet
that the Flux of blood might not mar his working not twisting
the Ligature however till the dressings were undone, when the
supposed the usual flux would follow, but it was stop'd by a
spongy Excrecence growing out of the Orifice; this was as
troublesom as the former to cure, for it grew so large (notwith-
standing there were abundance of Escharotic Medicines ap-
plied) as to cover almost the whole forepart of the uppermost
Joint of the Forefinger; It was twice cut off, and still grew again
nor was it entirely cured till after the Patient's being brought
to Bed.

In the 49th Observat. of Tulpian's first book of Observations, you
may see what difficulty he had in stopping the bleeding of an Ar-
tery in the Teeth; Consult likewise May's Prax. Chirurg.
Rational. Decad. 3. Observat. 4. (after Observat. 22. Number
Observat. 72.

In the first of the Cases now supposed, viz. where the Artery is
not quite cut thro' there is a probability even when it is closed
that an Aneurism may ensue, because the Quatrix is not so strong
as the Coats of the Vessels were, & therefore may yield to the impulse
of the blood, as Wiseman Book 5. Chap. 2. Obs. 3 of his Sur-
gery tells us, happened to a Butcher in Westminster, who was
wounded

wounded in the Artery betwixt the Thumb and Forefinger. 25.

Julpius Book 4. Obser. 11 gives us such another history. —

If it is a large Artery that is cut asunder the force of the blood sent from the heart will hinder the surrounding parts, or Contraction of the Vessels itself, to stop the flux, but will occasion an Haemorrhage till the Patient die or faint away, which is a certain degree of death for a while; There needs no Authors be adduced to prove this, the thing happens daily, of which every Writer affords sufficient Instances; Then all the parts to which the Branches of this Artery were distributed, will be deprived of all sense, motion, and nourishment, and gradually & slowly gangrene, provided it is the only Artery that is sent thither.

The reason is plain, because the Nerves, unless blood be conveyed to any part, can have little effect, and when the Circulation is stopped any where, that member may be lookt upon as a piece of dead flesh, which of itself would soon corrupt, but still more when furthered on to it by the heat of the body; Now this Gangrene won't proceed so fast as if the blood had still access to it, because the quickness of a Gangrene coming on is owing to the great Obstruction, distension of the Vessels, Congestion of the Liquids, and Attrition of both.

Plenty of Instances are given by Authors, as Hildan. Cent. 2. Vs. 8. May's Decad. 5. Obs. 4. Wiseman Book 5 Chapt 2. but above all the illustrious Boerhaave uses to mention one of a Country man near Leyden who was wounded with a knife,
in

26. in the inside of the Arm pit, by which the humeral Artery was quite divided or cut thro' there was soon such a loss of Blood that the Patient faintes, the mouth of the Vessels shrunk so far up and near the Trunk of the Body, that there was no coming at it to stop it, wherefore the Surgeon applied thick Compresses and Bandages leaving him without the least hopes of his recovery. He continued several days without any sensation, and but just as much motion as could make them observe him still alive, and in that time Nature has done what Art could never have pretended to, closed up the mouth of the Artery. The whole Arm below gradually grew a piece of rigid mummy, which he carried about with him, confirming what Hippocrates de Ulceribus says, That these parts, (speaking of the Arms and Legs) when exhausted by the efflux of Blood, become dryer and less.

If an External Coat of an Artery happen to be wounded, while the internal is entire, the force of the Blood striking against this internal part of this Canal weakened will greatly & gradually dilate it, while by the Compression which necessarily this beginning tumour must suffer, its sides are rendered harder, the Circulation is still performed by it, and therefore the pulsation continues; it does not much alter the Colour of the Skin, but only makes it incline somewhat to reddish by pressing it the Blood contained in it may be forced into the Artery again, & the Tumour disappear, but as soon as the pressing force is taken

taken off, it returns to its old state, the Artery both below and above becomes larger, consequently the neighbouring parts are comprehended. This kind of Swelling is called a true Aneurism. You may see examples of this kind of Aneurism happening after this manner, in several Authors, particularly in Aldan.

rus Cent. 3. Obs. 44 & de Gangrena et Sphacela Cap. 4.

Ruyssch Obs. Anatom. Chirurg. Obs. 2. tells us of a Brewar in Dorstill, upon blood letting in the Basilic Vein had the Artery immediately below it thus wounded, and a true Aneurism following it. Wiseman Book 1. Chap. 16. Obs. 5. has just such another Story Philosophical Transact. N^o 980. or Morley's abridgement Part 2. Chap. 6. Mr Cooper relates to the Royal Society the like case of a Boy about 8 years old.

'Tis true that this part of the disease more frequently happens from internal Causes, as the Erosion of the Coats by some acrid snatter or from Strains or Contusions; however, from any of these Causes it sometimes grows to a prodigious bulk; In the Memoires del Acad. des Sciences ¹⁷⁰⁹ Lib 5. 1.st Mr Lettre gives the report of a very large one in the neck, which brought on a Gangrene on the parts below. And in these same Memoirs 1712 March 12. there is just such another history. See an account of monstrous big ones in Ruyssch Obs. 37 & 38. Aldan. Cent. 3. Obs. 42 and 43. Bonet Anat. Pract. Lib 4. Obs. 21.

If the Coats of the Artery be all perforated, and the Aperture of the Teguments but small, the blood insinuating itself between the Intestice of the muscles between the muscles and Teguments, and in to the Tunica Cellulosa it swells all the parts

parts, turns them red or blackish, spreads quickly, yields very little to pressure, and has little or no pulsation, and unless speedily remedied brings on a Gangrene and Mortification, on the member: This is the bastard Aneurism. In almost all the Authors that treat of Surgery you may find examples of this, Among the rest, Wiseman Book 1. Chap. 16 and Book 5. Chap. 2. has several remarkable Observations of this sort —

The Veins, unless very large, when wounded, shut of themselves, and when large afford no other Phenomena than has been observed in the Arteries, with this difference, that the effusion of Blood is not so impetuous, nor with a saltus or Leaping, but with an equal Stream; it is not of so florid a Colour, nor so thin as that of the Arteries. —

The Lymphatic Vessels, which you know are nothing but Veins, when wounded send out a watery Liquor, which sometimes turning sharp erodes & frets the neighbouring parts; Because of the thinness of this Liquor and thinness of the Coats it is sometimes troublesome enough to get that Ichoring stopt, tho' it is not attended with any other troublesome Accident. This case sometimes happens in bleeding, which the Surgeon cannot help, whatever blame he may suffer. An instance of this you have in May's Decad 2. Obs. 4. Vander Wielcent 2. Obs. 46. gives another which happened in his own practice, upon bloodletting, and tells us of two from Solingius's Operat. Chirurg. 4th pars Cap. 3. one of which examples is extremely plain and distinct, for Solingius could plainly see the Orifice of the Vessels, the pouring out of the watery humour, & introduced his Probe a little way into it, where he found a Valve stopping the farther progress of the Probe. The

The Nerves when quite cut asunder contract themselves, & are drawn up under the surrounding parts, the other Branches that come off from the same Trunk wanting the Assistance of that which is divided are more stretched, & therefore the parts to which they are distributed are pained, their Vessels contracted and Liquids obstructed, whilst the parts which before were served by the Nerve cut, (now that its Source the Brain is separated from it or the Medulla Spinalis) are deprived of its Sensation and nourishment. The Wound however comes near to a simple Wound —

If a Nerve happens only to be pricked or half cut thro', these fibres that remain undurt, have the contractile force of the whole to sustain, and therefore must be a piece meal sore, which will create pain that sometimes at first is not very violent, other whiles is felt very sharp. The small Vessels that run along the Membranes of the Nerves will be obstructed; that soon is communicated to the neighbouring Nerves, and their Origin sympathizes, from whence a great train of Accidents (and these the most fatal) very often attend these sorts of Wounds (tho' perhaps they may at first appear very slight, and so are neglected) as Tumors, Fevers, Delirium, Convulsions, Inflammation, the entire loss of the Use of the Member, Gangrene, and even Death itself. There is commonly a thin Ichorous watery humour that drops out of the Wound, so acrid as to destroy the parts, and create a shocking pain to the Patient, as Caustics would do. Before I refer to Authors for historical facts to confirm this, we'll first examine the Wounds of the Tendons and Membranes, as they are generally attended with the same Symptoms, and authors confound them very much in their Accounts.

AF

If a Tendon is quite cut thro'; by the contraction of its Muscle its extremity nearest the Muscle is drawn up and hid under the neighbouring parts, the use of that Muscle is lost, as Hippocrates in his *Coere. Granot. S. 5. & 8.* has described, & it differs nothing from a Nerve in the same condition.

If a Tendon is only in part divided, it may, for the same reasons, be attended with the Accident mentioned in that of a Nerve, — The Membranous Wounds are much a kin to the former. —

Now, for Instance of the fatal consequence of these Wounds, consult Hippocrat. *de morb. vulgar. Lib. 7 S. 46.* where he tells of two that died of a wound of the foot. *Hildan. Cent. Obs. 2.* has five remarkable Cases, particularly one of the famous Anatomist Spigellius, who lost his life by cutting his finger with a broken glass. *May's Decad 2. Obs. 1.* gives two or three instances of this nature. *Rumner in his Obs. med. Obs. 10.* gives an account of the fatal consequences of the prick of a Needle; *Cesar Magetus de varia Vulnerum curatione Lib. 1. Cap. 16* relates several such Cases. *Tota Makreen Obs. Medii. Chirurg. Cap. 65.* has three very remarkable Examples of this kind, where the Patients from the prick of a fish bone in their fingers, near lost their lives; the parts gangrened, and the whole Arm ulcerated. If you desire any further confirmation of this look to *Aquapendent. Lib. 2. Cap. xi* *Wiseman, Book 5. Chap. 3.* *Boribelle Chirurg. Lib. 2. Cap. 8* This I think may suffice for the Diagnosis of Wounds, and the way how you come to distinguish all these sorts is easily deduced from what has been said. If the whole extent of the wound be

be seen and it be cleared, the knowledge of the Structure of the 31.
parts will lead you to it. If the wound is so deep or small that it
is not at all exposed to your eye, examine in what posture the
Patient was when he received the wound, after what manner his
Antagonist was placed, how & with what force the blow was di-
rected, the nature and shape of the Instrument wherewith it was
given; thence you will find the Depth and Direction of the wound,
which with the knowledge of the parts will pretty near inform
you. Likewise consider what Action is impeded or Cured, what is
evacuated by the wound and the Symptoms attending it; from all
which rightly understood you cannot but have a clear Diagnosis,
and we may therefore proceed to the Prognosis or Prediction of
what the event may be as for the knowledge of these Wounds
which come to be distinguished from the nature of the Instrument
inflicting the wound, the force, and the magnitude of the wound
itself, or accidents that happen along with it, there is no neces-
sity for any particular consideration, since you either discover
them immediately by seeing or feeling, or are informed of them from
other hands, or they don't appear for some time after —

Nothing more distinguishes a regular, experienced, rational
Surgeon, from an Empiric or Quack, than this art of making a
right Prognosis or Foretelling what the event of diseases will be,
This makes him to be look'd on as a sort of Prophet, takes away
all the reflections that Surgeons too too frequently incur, gives
a great deal of Satisfaction to the Patient, & his friends, and
engages them to follow his directions more exactly. And then you
know how often Surgeons are obliged to make their report in
Criminal

32. Criminal Cases, in which the shedding of innocent blood or saving a Murderer (both heinous crimes) depend; so that one can't take too much pains to be perfectly well acquainted with this Branch of his Art. Hippocrates seems very sensible of this, when he tells us in his Book de Morb. Whoever would in the Cure of Diseases ask proper questions, or answer distinctly to those that are proposed, and refute all Objections, ought to consider what are the Causes of Diseases, then, whether they'll be of long or short duration, whether deadly or not, whether the use of any member will be lost or not, which are doubtful in their Success, which will, and which not &c. or as Celsus has it Lib. 5. Chap. 26. S. 1. But in Wounds the Physician above all things ought to know what wounds are incurable, what difficult and what easy to cure, for a prudent man ought rather not to touch one that cannot be saved than incur the blame of his death when it is owing to his fate, and then if there is a great deal of reason to fear the worst, yet the Case not quite desperate, he ought to foretel the danger to the Patient's friends, lest the disease baffle all his Art, & he be thought either ignorant or a rogue.

By this you see we are first to determine whether the Patient will live or not, whether we can cure him or not, if the work is easy or difficult, long or short, if it will be a complete perfect Cure, or only a partial one, and then what condition the Patient will be in after it, what Infirmities or Diseases it may leave behind it. —

Now for knowing whether the Patient will live or die, we must see

see what Wounds are deadly and what not; Deadly Wounds are either ^{33.}
(as we observed when we were upon the general Division of Wounds)
such as cannot be cured by Art, or bring certain inevitable death
along with them, or else such as, if left to themselves, would cer-
tainly kill the Patient, yet if timely assistance were made by a
skilful person may be cured; It is a very hard matter to deter-
mine the first sort. There are such wonderful Stories handed down
by Authors of people escaping when there were no hopes of them by
all appearances. Hippocrates in his first book de morbis pronoun-
ces the doom of all those that are wounded in the Brain, Medulla
spinalis, Liver, Diaphragm, Bladder or large Blood Vessels.
This he confirms in his Lib VI of aphorisms, S. 18. adding the
Heart, small Intestines, and Stomach, and again repeats it in his
Coacoe Praetot. S. 309. subjoining likewise large Wounds of the
Lungs, or when more Air comes out by the Wound than the Trachea
Arteria, and transverse wounds of the large internal Nerves. In
this place tho' he does not so positively condemn them, for he begins
with an almost always die. Celsus Lib. 5. Chap. 26 S. 2.
agrees in the same, only specifies some of them, for he says it is
the Basis of the Brain, the Porta of the Liver, the large Arteries
or Veins about the Throat, numbering likewise wounds of the Kid-
neys amongst them. But none go so methodically to work to
determine this as the great Boerhaave. He divides them into
five Classes, 1st Are such as intercept the Course of the Liquorem
Nervosum to the Heart, upon the action of which, viz the driving the
Blood into all the parts of the Body, life depends: The Wounds that
may do this are those of the Cerebellum, from which the 8th pair
of Nerves that is sent to the heart take their Rise: And Wounds of

34. of the Brain that penetrate to the Medulla Oblongata, and hurt it much, for the Medullary fibres of this mix these of the Cerebellum, and after their Conjunction the 8th pair comes out, as likewise the 5th and 6th directly proceed from the Medulla Oblongata; and these Nerves from the Beginning of the Intercostal Nerves which frequently join the Par vagum and is along with it distributed to those parts on which our vital Action depends. I don't know one Instance of a Patient's being cured who was wounded in the Cerebellum; the Cerebrum itself has been frequently cured, even when considerable quantities of its Substance have been thrown out by the Wound: Of which you may see Examples in a great many Authors, as in Skinkius Obs. Med. in Folio de Capite Obs. 19. 67. 68 and in Boerhaave de renunciat. vuln. part. prim. you'll find a vast variety collected from Hildan, Forrestus, Maske, Fallop. Beranger, and a great many other Observators. There are two very remarkable Wounds of this part cured, one in Galen Lib. 8. Cap. 10. of a youth at Smyrna in Ionia, where one of the anterior Ventricle of the Brain was opened and yet the Patient recovered. The other is Nicolaus and Maske's Observation, and is related by Skinkius Obs. 67 de Capite. There the Wound penetrated as far as the Os sphenoides, at least afterwards when the Probe was introduced into it, it hit against the Bone, yet the young Gentleman, whose name was Marcus Gero, escaped. So that you see it is not without reason that there is a considerable Lesion of the Medulla Oblongata to make an inevitably deadly wound.

The 2^d Cause that may stop the course of the Spirits, is, a rupture of the Blood vessels within the Cranium, & the Lodgement of

of the blood in such a place, as it can't be evacuated by the application of the Trepan or any other way, as when it is lodged in the inferior parts of the Skull, for either by its pressure on the Medullary or Fibrils it will stop the course of their fluids in them, or else corrupt them, as Hippocrates Aphor: Lib 5: S. 20 says, all blood when evacuated into any Cavity will do. It soon also destroys the Nervous fibres, and renders them useless. See an Example in Tulpius Lib. 8. Cap. 2. 43. In the first the Vepels were broke and the blood evacuated at the Cella Turcia without any fracture of the bones; in the second Case there was a considerable Fracture of the Os Sphenoides; both died in a few days, and their Brain was beginning to corrupt. Consult also Behn Premium. Vuln. Sect. 2. where are several like Cases; and Minshius in fol. p. 24. Instances innumerable might be given of blood extravasated in the superior part of the brain, and cured by aperture of the Skull & Evacuation. But that you know is not at all our present Supposition.

The third Case that may happen to intercept the Liquidium Nervosum as it goes to the Heart, is, deep wounds in the superior parts of the Medulla Spinalis, because that consists then entirely of the Medulla Oblongata Cerebri and Cerebelli; & therefore these parts will likewise suffer, as also the Branches of the Intercoastal Nerve, which it receives in descending from the Medulla Spinalis will be rendered useless; You know it is a common Experiment in Anatomy and frequently practised, when you would have an Animal soon expire, to drive a Bodkin into this part between the Vertebrae near the head by which the Creature immediately expires. may for the most part large Wounds even in the lower parts of the Medulla Spinalis prove

36 prove mortal, as we learn from *Tulpius Obs. Lib. 3. Cap. 26* & *Bohn Renun. Vuln. Sect. 1. & 2.* Several instances are produced both from his own Observations and other Authors.

The last supposition to be made for hindering the heart's being supplied with the nervous Juice necessary for its action is, the Dissection or entirely cutting the Nerves that supply it; The reason is plain, why Death should be the consequence of this, but Authors have not been so very nice as to observe these small parts and therefore I don't remember to have read any Observations of it.

The 2^d Class of deadly Wounds absolutely so is, those that allow a passage for the blood to flow out of the heart, that is, Wounds that penetrate into its Cavities whether Auricles or Ventricle, for the continual necessary action of the heart hinders their so speedy reunion, while in the mean time if either the blood can get out of the Pericardium, the Patient must die by the Hemorrhage, or if the blood is only coagulated into the Pericardium & get no further, by its Compression it would soon put an end to the motion of the heart, which is confirmed by all the Observers, as *Forrestus. Obs. Chirurg. Lib. 5. Obs. 2.* *Shenkuius Obs. Medic. Tol. p. 275* *Obs. 208, 209, & 210.* and *Bohn Renun. Vuln. S. 2.* relates a great number from *Bartholine*, *Peringer Miscell. Curios.* *Diemerbroek*, *Bonet*, &c. It is reckoned next to a Miracle by all these Gentlemen, when the person so wounded lives a few hours, or is able afterwards to stir. Nay he goes further, and endeavours to prove by Examples from *Glaucus Viduus*, *Pary*, *Flor. stius*, *Henricus Althoers* &c. Wounds in the heart, tho' not penetrating into its Cavity, deadly.

The 3^d Class of these Wounds that inevitably bring death are in such

such parts where there are large Vessels cut that pour out their Blood, and there is no coming at them to supply remedies, such as large Wounds of the Lungs, thro' which the Arteria Pulmonalis is distributed, and therefore its large branches must then suffer. Examples of this are afforded in Jimij Respon. Med. 16 in Bohn Aenun. Vuln. S. 2. There are several it's true, and there might be a great many more where the Patient escaped, as in Pignus Chirurg. Lib. 4. Cap. 16. and in Scalp. et Vund. uel Obs. Med. Cent 1. Obs. 30 & 31. Think. Obs. Med. 278 fol. p. 270. fol. p. 279, 278 & 301. Nay it has often happened that considerable pieces of the Substance of the Lungs has been cut off, and the Patient recovered, as in Hudson. Cent 2. Obs. 32. Think. Obs. Med. 279 folio page Iulpius Lib 2. Obs. 17. but then the Vessels were either tied or cauterized, or some other means used to stop the Hemorrhage, the parts being exposed to sight.

Large Wounds of the Liver are much akin to these of the Lungs for the same reason viz. the large Branches of the Vena Portarum and Cava, and have as ill consequences, as in Jimai Respon. Med. 28. Think. de Vuln. Jecor. Obs. 7. fol. p. 414. Bohn Aenun. Vuln. S. 2. Cap. 4. Other small wounds of this part may be and are frequently cured, as you may see in the same Chap. & in Think p. 414.

The Spleen has the largest Artery in respect of its own bulk, be. shewed on it, of any part of the Body, and thro' its middle runs a large Sinus Venosus, and therefore is to be considered the same way. Consult Bohn — If the Vessels of it be tied, this Viscus may be cut quite away, as has been frequently performed and Forrest Lib 6. Obs.

38 Obs. Chirurgy. Obs. 4. relates the Cure of one who was wounded in this place, and Shink fol. page 427. Norman Chirurgy. curios. Lib. 2. Chap. 2. The Kidneys may be reckoned in the same Class, because of their large emulgent Vessels, and then the Urine running out would hinder their Coagulation, however, small the wound, even with loss of Substance have been cured, as you may see in Fallop. de Vuln. in Ren. Chap. 4. Forrestus and several others. A very remarkable Case is handed down to us in the Philosophers Transact N^o. 223. Loshrops Abridgment Vol. 3. p. 188. of one Mr Hobson the English Consul at Venice, who had a Stone cut out of his Kidney by Domen de March Professor of Medicine at Padua, and was cured by him.

If the Pancreatic Vessels are cut, wounds of this part are deadly, otherwise not.

Along the Mesentery there are a great number of Arteries that go to the Intestines, and Veins that return the Blood from them, together with Lacteal Vessels dispersed, by the cutting of which such an effusion of Liquids may ensue as soon to kill the Patient. Bohn relates three remarkable examples of this.

The Stomach and Intestines have very large Blood vessels, & in great number, therefore come under the same head, but wounds of those parts prove of ill consequence upon other accounts also which we shall have occasion to mention, and therefore refer giving Examples till then.

The Womb is naturally little when not distended, then its Blood Vessels are contracted, and wrapt close together, therefore the cutting of them is not very dangerous, but when its stretched out as in the

bellied

belly's Women, the Vessels gradually enlarge, & are explicited that a sufficient quantity of Nourishment may be conveyed to the Fetus, so that these which before would not admit of a hog's bristle will now receive a quill, and therefore if wounded would soon dispatch one by loss of blood. For if upon the Separation of a part of the Placenta, such an Hemorrhage ensues as we see frequently happen, how much rather so when larger Vessels are opened —

There are considerable Branches of the internal Iliac that run along the Sides of the Bladder, and are distributed thro' it. These if opened cannot by any art be stoppt, as sometimes happens in the operation of Lithotomy, when the Stone is very large, and lacerates the neck of the Bladder, such a flux of blood ensues, that the Patient expires in the Operators hands. See this proved by Examples in Boerh. Sect. 2. Chap. 4. Other wounds of the Bladder are frequently cured, else the higher apparatus had never been ventur'd on, which however has been performed with good Success, and a vast many Observators may be adduced as Gulph Lib. 4. Chap. 30. Fallop. de Vuln. in gener. Cap. 4. Shink Fol. p. 502. Now since Wounds of these Arterys, which are but inconsiderable in respect of their Trunk, bring such certain destruction, what can we expect of the Aor. ta itself, when it suffers, certainly we cannot entertain the least hopes, or if its nearest or largest branches are opened, to which we can't have access, as the Subclavian or Carotids, are absolutely deadly, because if it is in the middle of the Neck, there is a possibility of tying them, as is frequently with Success done on Dogs, but if it is near the Trunk of the Body or head, there is no imaginary possibility of escaping, nor do any of the Authors I have looked into furnish us with an Example, if any one escaping after the cutting of these Arteries; 'tis

40. true there is memorable history that the Learned Boerhaave uses to give of a young Gentleman who was run thro' with a sword between the fourth Vertebra of the Neck, whereby the Vertebral Artery was cut. He lived for 9 or 10 days either in a continual Syncope or Haemorrhage. Any other large branch of the Aorta to which there is no Aneurysm will prove just as fatal as any of these mentioned. E. G. The Iliaick, Hypogastric &c. The large Veins are just as bad as the two Cavas Subclavian, internal Jugulars, Iliacs, Vena Portarum &c. since they will pour out more blood than the Patient can bear, without the loss of his life; If you would have this proved, consult Bohn de renun. Vril. Sect. 1^{ma} & 2^{da} Cap. 2. and Dursman Chirurg. Curios. Lib 2. Cap. 2.

The 4th Class that necessarily prove deadly are those that stop Respiration entirely, without which you know no creature can live. This may happen several ways, if the Trachea Arteria is quite cut thro' near the Claviicula, and the under part of it is drawn down by its own contractile force, and Weight of the Lungs, under the upper part of the Sternum, so that there is no possibility of bringing the divided ends together again, if it is divided near the middle of the Throat, it is easily enough cured. I remember to have seen an instance of this in one Jarving, who cut his own Throat with a penknife, so that no air passed by his mouth but all by the Artery the divided parts were brought together and stitched by my father, and the wound cured. Tulph Lib. 7. Chap. 60 has exactly such another Case.

Large Wounds of its branches in the Lungs will have as bad effects, this being also accompanied with the cutting of the large Vessels

Vessels, which we have spoke to already, only recollect what I have Al-
ready cited from Hippocrat. Coacae Praetor. S. 509 where he
esteems among deadly wounds those of the Lungs where more Air
comes out by the Wound than by the Larynx.

If large Apertures are made into both the Cavities of the Thorax
at once, the external Air rushing in will balance that within the
Lungs, consequently leave them to their own contractile force, by
which they will collapse, straiten the blood Vessels, hinder the
passage of the blood, and so very soon suffocate the Patient. Vesal-
lius used to demonstrate this in his Anatomical Lectures by open-
ing first one side of the Thorax of a sow, which when hurt is a
very noisy creature, that Lobe of the Lungs immediately left off
playing, then doing the same by the other side, it immediately lost
its voice, and soon after died. But if there was one ready at
hand to shut up the Orifices, and suck out the Air, this mischief
might be prevented. To this collapsing of the Lungs by the Air
getting into both sides of the Thorax, it is that in the Acta Med.
Berlin Vol 2. S. 4. Hist. 7. the Physicians attributed the death
of a Clothier, who was wounded with a cutting Sword between the
1st and 2^d Rib; the wound penetrated thro the Thymus and Me-
diastinum, but no other of the contained Viscera or Vessels or
nerves were hurt, and not above 3ij of blood lost.

Large Wounds in the fleshy part of the Diaphragm (which is
absolutely necessary for respiration and one of the principal In-
struments of it) even in one side, but still more if on both sides
of the Mediastinum, will stop the reciprocal admission & expulsion
of Air into the Lungs, & put an end to life, both because its action
will

42 will be hindered, & the Viscera of the Abdomen which are always ex-
posed to a considerable pressure, insinuate themselves into such wounds
and so into the cavity of the Thorax, as Parey Lib. 9. Cap. 30. Sen.
next. Prae. Lib. 2. Cap. 15. and several others relate to have seen
small wounds indeed of this muscle have frequently been cured,
as you'll find in Dicmerbroek Anat. Corp. human. Lib. 2. Cap. 3.
Shenk. Obs. med. 257 fol. p. 294. The Tendinous part of this
muscle is reckoned incurable by all, for there is such an In-
tertexture and Complication of Fibres there, and necessary conti-
nual motion, that the solution of them will certainly bring on
all the Symptoms of a pricked nerve or Tendon, consequently it
will be rendered altogether unfit for the use for which it was
designed. I don't know one exception in this Case The dissec-
tion or Division of the Phrenick Nerve will likewise entirely
destroy the action of the part, as Anatomists frequently experience

The last Class of Wounds which Art cannot remedy, but in-
evitably occasion the death of the wounded person are those that
deprive the body of its due nourishment, by rendering the Chyle to
be prepared or conveyed to and mixed with the mass of Blood.

Let us take them in order according to the passages of the Aliments.
First, the entire or compleat dissection of the Oesophagus or Gula,
by which the food passes from the mouth to the Stomach, if this
happens, the parts recede from one another, the Canal is discon-
tinued, it lies so deep and surrounded with so many blood ves-
sels and nerves, that there is no coming at it, wherefore the
Patient must perish: But if it is not quite separated the one
from the other tho' it be opened, it may and has been cured
Wimsh. Shenk & Digruis cited by Bohn, & I have seen it my
self

self in that man I mentioned who cut his own Throat with a pen-
knife; his Aliment before the Wound was stitched came out of it.
and he in great hazard to be suffocated by its falling into the Trachea
Arteria; As soon as he was dressed up that ceased: Which I think
may be accounted for thus. When the Wound was inflicted as soon as
the Trachea Arteria was cut asunder, it contracted and fell down.
the wound therefore immediately given after that to the Gula,
would not agree to that of the Wind pipe when it was drawn
up again, so that the back part of this Canal closed up the
wound in the Esophagus till Nature did something for the
reunion of this divided part, She being in the mean time as-
sisted by his getting nothing but Liquids, and those of such a
nature as might assist the Consolidation or making up
what was wanting. If the Gullet is wounded, tho' not entirely
divided in its passage thro' the Thorax, 'tis for the most part
of the worst consequence, as you may learn from Bonetus
Med. Obs. 12.

Large Wounds of the Stomach, by allowing the Aliment
to pass out either into the Cavity of the Abdomen or otherwise, de-
prive the Body of its Nourishment, tho' the most danger is in the sum-
mer of the large Blood vessels and Nerves that are distributed upon
it, which brings sudden death to the person who has the misfor-
tune to be wounded, as we learn from Hippocrates de morb. vulg.
Lib. 5. § 98. 99. Forrest. Lib 6. Obs. Chirurg. 5. Ferneli
Respons. Medic. 19, and several other instances produced by Bohn
Sect. 2 Cap. 14. It is next to a miracle what Eollius in his
Basili Chymic relates, and Sennert Lib. 5. part A. cap. 3. trans-
cribes from him, of a Country man, whose name was Matthews,
who

44 who us'd to conceal a knife in his throat, so that none could observe it, then after drinking a glass of common Ale, which was his hire, he pulled it out again, however, unluckily at length swallowed it down to his Stomach, and after some weeks it was cut out thence and the man cured. Diemerbroeck Anat. Corp. human. Lib 1. Cap. 16 from Lottius and Arpinus gives us exactly such another history, and the knife kept among the Anatomy Chamber Rarities at Leyden. Several indeed have been cured of small wounds there, as Sennertus in the place above cited relates from Julius Alexandrinus, & Bohn cites from Galen, Fallop. Glendrop. & Rhink F. p. 348 from Cornore and Vega, Ettheus Hieresius &c. which might well enough be, since in that case the contraction of the Muscular Coats of the Stomach would help to bring the parts together again —

The small Intestines near the Stomach where are few or no Lacteal vessels yet gone off, if entirely cut asunder, will have the same effect, in preventing any nourishment going to be mixed with the mass of blood, therefore are attended with as fatal consequences, as Hippocr. de Morb. Vulg. Lib 5. S. 21. Consult Bohn and you'll find a great number of authentic authors produced for it. Small Wounds may be cured, yea even where the Intestinum Illium has been quite cut thro; for we read Observations of the Patients living a long time after the superior part of the Intestine being seen red at the aperture of the Teguments, and all the part of the Aliment that came that far down evacuated there; there being as much Chyle taken up by the Lacteal Vessels from the Guts above that, as saved the Patient as in 1681 and 1712.

The only parts that remain now, which can (when destroyed) deprive the body of nourishment, are, the Receptaculum Chyli, and the Ductus Thoracicus

Thoracicus Pecquetanus. Lower's Expt. of introducing his finger between the ribs of a dog and his nail cutting the Ductus Thoracicus, whereupon the creature languished for some days and died of an Atrophica, while the Cavity of the Thorax was full of Chylous Liquor, plainly enough ~~evinces~~ ^{evinces} what may be expected. These parts are so small & so ill to be found in a dead body, that it has seldom been adverted what was the occasion of the Patient's death in this case, but it was rather attributed to a Hydrops Pectoris. However, Bohn from Lilegolat, tells us a story of one that was wounded in the Ductus Thoracicus; at least the liquor that came out of the Wound and the Matter that followed made it appear to be so; This Gentleman was very near cured, but by excess relapsed and died. Bohn imagines it to have been only opened after its division, and before its reunion, consequently one half of it hurt —

By this time we have got over all the wounds that stop the action of the parts absolutely necessary for life, viz. the supply of Animal Spirits, the Circulation of the Blood, the reciprocal alternate motion of the Lungs, and the recruiting our Solids and Fluids by an Addition of new matter. Now we come to the 2^d. Sort of deadly wounds, viz. those that if left to themselves, or without any assistance offered them, must inevitably kill the person wounded, but, if the Rules which our Art prescribes are duly put in practice, might be cured; such as Wounds of the Head, where ^{by} the Evacuation of the Blood or depression of the Skull, the actions of the Brain are hindered, and if no means are used for the relief of the Patient, would certainly kill him, yet by the Application of the Trepan, these Causes might be removed; When we come to treat of wounds of the Head, Instances enough shall be produced —

2. Wounds of any large Arteries or Veins, which the Surgeon can come at shall be hereafter discoursed to —

3. Those of the Viscera to which both hands and Medicines can be applied, for example, if by an wound of a cutting Instrument of the abdomen, the Guts were hurt, and the wounded Intestine appeared, as the internal Orifice by sewing it up it might be cured, whilst if that had not been done, the Aliment or Faeces getting out by it would have proved fatal.

4. When Matter, whether Blood, Pus, Water, or whatever, is poured forth into any cavity, where if it was allowed to lodge, it would infallibly occasion death, but may be evacuated with safety, as the operation of the Trepan, Empyema, Paracentesis &c. sufficiently teach us. —

So much for wounds which of themselves are deadly, we therefore come next to the not deadly of themselves, but that may become so by some of the following causes.

If Blood be evacuated in any part, especially when near to any part necessary for life, and this matter be not evacuated, the Patient may die by the matter being taken into the Mass of Blood, & occasioning a hectic fever, a Phthisis &c when otherwise there was no great danger in it. Valeriola Obs. 7. Lib. 4. tells of a young Gentleman who died in such a condition. after receiving four wounds, two of which had penetrated into the Thorax; When his body was opened, there was a great collection of matter within that cavity. Stolpeius Lib. 2. Cap. 26. relates such another story of one wounded in the Liver but slightly, who was cast into a sore fever and died emaciated; his Liver was found ulcerated. Forrest. Obs. Chirurg. Lib. 6. Obs. 3. confirms this, and it very frequently happens after wounds of the Head, as Boerhaave very well avouches; I lay upon a large Abscess, or Wound, where there was a very plentiful Suppuration, I have frequently seen the same fall out

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If excess is committed in the Patients way of Living, or what is commonly 47.
called the six Nonnaturals, viz. 1. The Air, 2. Food. 3. Motion & Rest. 4. Dispo-
sition of the Mind. 5. The Secretions & Excretions. 6. Sleep & Waking. Now,
I say, if these be not used in a moderate way, the Patient may suffer by
it. As for example, if the Air be too hot or cold, his Food too plentiful
or dried, if he uses violent motion, if he gives way to fear, anger, or
any violent passion, if strong purgatives were given him, or if his
urine be entirely suppressed, if he sleep like one in Lethargie, or could
sleep none. These are only samples of the many other Cases that might
be made, and it would be in vain to run thro' historical proofs of them
all, let one or two serve. In the Year 1715, I remember to have seen
at Stirling a Soldier of Montagues Regiment who was wounded in
the foot, besides several other Wounds he had in the head; he had been
stript and left in the field all night, which was frosty and very cold.
The Wounds which were but slight were along time in healing, and his
toes of the hurt foot all mortified, so that he lost the most part of
them. Another Soldier of the same Regiment had one of the temporal
Arteries cut with a broad sword, and part of the Parietal bone slopp'd
off. Mr Brown the Surgeon at every dressing stop'd the Hemorrhage,
which he in a very little time after always renewed by drinking of
Spirits which his wife secretly conveyed to him, till in some days he
died. In the Acta Medica Berolin. Vol. 2. Sect. 3. Hist. 1. There is
the case of a Soldier mentioned, who was wounded with a cutting In-
strument in the Forehead; he went about undressed for four days, even
then the Surgeon of the Hospital to which he was brought saw no deadly
sign, but at no rate could he be kept from going abroad, and living after
his own fashion, which kill'd him the 11th day, for which reasons the
Physicians gave their opinion after the body was opened, that the

18 wound was not deadly, in order to acquit the person that wounded him. —

The neglect or mistake of the Surgeon may prove of as great danger as any of them. This too too often experience convinces. I have seen by too tight a bandage the whole arm in hazard of a mortification, and by the great suppuration that ensued the Patient lost his life. Boerhaave uses to tell us of a young Gentleman who was wounded in the Cubital Artery, the Surgeon applied caustic tied^d and strong compression by which the neighbouring parts were destroyed, and the middle artery of the forearm eroded and opened by the flux of blood, from which the Patient died. And he tells us of another who had the artery that runs between the Tibia and Fibula cut; the Surgeon thought by bandages and compression to have stop't it. There he applied very thick, but before his return, the Patient died to death, whereas in both these cases, had the Tourniquet been applied, the wound dilated, and artery tied, there had not been the least danger. —

Sometimes the Patient is of such a bad habit of body, and ill state of health, that very simple wounds may be attended with very fatal consequences; for example, if he is Hydropic, especially if of long continuance, and his strength beginning to fail, the Vis Vita so weak, and the Liquids so thin, that before a wound can be brought to unite, the whole substance of his body (as the common saying is) will come out at it, and he die. The same may be said if he labours under a Pleuritis Pulmonalis or an Abscess of the Liver.

Now all these sorts of wounds, except these mentioned, are not of so ill consequences as to deprive the Patient of his Life, yet some are soon and easily cured, others are difficult and tedious.

The first method of drawing a right Prognostic will be from the nature

nature of the wound itself, in which its figure is first to be considered. A straight one is better than a crooked or angular, because its lips are more easily brought together and kept united. A little and superficial one does not take so much time and labour as a large and deep one, and of these the worst are where there is loss of substance. Where the Matter can have better access to be evacuated it is easier cured than otherwise. As for Instance, if the Orifice is in the most depending part the wound will heal sooner than if it was in the superior —

The 2^d manner of judging is, from the nature of the place affected. The nearer it is to the parts whose wounds are reckoned deadly, so much the worse, et c contra. Where Arteries, Tendons, nerves, membranes are hurt, the Prognosis is plain from the history of wounds of these parts. If it is a large Vessel that is opened, if the Nerve, Tendon, or Membrane is pierced, or only in part cut, it is much worse than if it were only a small Vessel or these were quite cut thro' & entirely divided. Hence wounds of the Joints are always reckoned ill to cure, because of the number of these parts these joints, and constant supply of that thin glutinous humour for lubricating them. If an Wound is in a part whose constant motion is absolutely necessary, E. G. in the Throat, it is not so soon united as if it were otherwise.

Thirdly, We are to have a regard to the other Accidents & Symptoms that may go along with them, as the Lodging of extraneous Bodies, poisons, confusions, breaking of bones, Hemorrhage, pain, inflammation, Spasmodus, Fever, vomiting, Delirium, Syncope, Convulsions, Palsy, Apoplexy &c. according as they are attended with fewer or more of these accidents, and these in a greater or lesser degree, so much the more easy & speedy Cure, or more dangerous and fatal Issue.

We are next to consider the condition of our Patient, whether old or younger

50 young, man or Woman, whether otherwise healthful or not, what disease he labours under, whether given to excess or not; for a young, healthful, sober, moderate person is much easier cured than one that is old, infirm, decrepit, or emaciate, or whose Constitution is broke, who labours under a disorder which of itself might bring him to his grave, or that by immoderate living would frustrate all the Care and Medicines that could be given and taken.

And last of all, we are to have respect to the Season of the year, for the scorching heats of Summer are ready to bring on an inflammation, fever, and their Consequences, with a very large Suppuration and acrimony in the matter, while the nipping Frosts of Winter contract the Vessels, and coagulate the Liquids, whence Numbness and Mortification —

This I think is all that can be said of the Wounds themselves, of which Celsus Lib. 5. Cap. 26. and Sennert Lib. 5. Cap. 4. de Prognosticis Vulnerum have treated more at large. The only thing now in the Prognosis is, to foretell what inconvenience the Patient may labour under, after the wound is filled up. This may be easily collected from what has already been discoursed. a large Artery quite cut asunder leaves an Atrophia in the parts which it supplied, a Nerve thus affected, an Immobility and want of Sensation, a Tendon, the loss of that motion which depends on the action of the Muscle. The lower part of the Medulla Spinalis (if ever a cure of it is made) a palsy in the inferior parts, a very large Suppuration in a big wound, a Tabes, hectic fever, and Consumption, a vast loss of Blood makes a hazard of a Dropsy, for the Viscera become so weak that they are not able to compress the new Ingesta, or perform what the Ancients called the second Concoction, but leave them crude; if it penetrates the Thorax and a plentiful suppuration ensues or come upon it, a Phthisis Pulmonalis may follow, if it is in any Viscus

Viscus furnished with large blood vessels, & g. the Liver, an ulcer in that part may ensue, thence a hectic fever; It would be in vain to go thro' all the vain suppositions that may be made, since anybody that considers what's already said, and is acquainted with the Structure of the parts, may without any difficulty judge of them —

The Indications for curing Wounds are

1. To cleanse them of all blood, confused flesh, or any extraneous bodies, and to take away all other accidents or symptoms which might hinder the reunion. Since I have reckoned these extraneous bodies among the accidents happening to Wounds, I shall refrain for the speaking any thing of them, till I come on the subject of accidents.

2. To supply the loss of any part by the growing up of new matter like to that which is lost. This they call curing of wounds by Symparsis, or by the second Intention.

3. To unite the separated parts, & preserve them thus united, this they name curing of wounds by Symphysis, or the first Intention —

4. To cover it over with a skin, as like as can be to the former, this they stile Cicatrizing.

Authors generally begin the description of the curing of Wounds by teaching us the first Intention or Symphysis; but if we consider that in this Case there is always a supply of some new matter, and that there is a greater apparatus in the dressing we must own the second intention necessary to be understood before we can be well acquainted with the others.

The Symparsis is performed (as I have already hinted to you in the Description of the Phenomena that appear in a simple wound from first to last) by the Elongation and stacking out of the vessels, and addition

52. Addition of new matter from the Liquids, which must be in a good condition and well proportioned to one another, else the Intertexture of the Blood Vessels which forms the network at the bottom of the wound will either be too simply made or grow up too luxuriantly. The first thing we are to do to assist Nature in this affair, is to order a right Diet. Hippocrates de affect. orders expressly a spare diet. In his book de Vuln. gives this direction, Little meat and Water for drink is fit for all Ulcers, but more for recent than old ones; As also whenever an inflammation is feared or already come, or any hazard of any thing being vitiated, or when a Convulsion is threaten'd, or when the belly, i.e. one of the great Cavities is wounded, but must of all, if the head or thigh or any part be fractured, he orders this for their Drink. Celsus. Lib. 5. Cap. 26. §. 25. applies these same directions to wounds, for says he, if it is a large wound, he ought to abstain as much as his Strength will allow him from meat, till the Inflammation is over, but let him drink warm Water to his Thirst; but if in the Summer, and there is neither fever nor pain, he may be allowed cold water: By which you see a low diet is recommended and certainly ought to be observed, because a high diet by increasing the velocity of the Blood is ready to bring on a fever, Inflammation &c. And Celsus on the same place cited says, it ought to be meat of good Juice, by which he means, that which may easily digest, and be readily assimilated, and become like to the Liquor of the Body, not of a glutinous nature, so as to make our humours too viscid; nor easily turning putrid, consequently acrid, which might bring on Suppurations, Inflammations &c. Therefore let it be prepared mostly of Vegetables, or if you venture on Animals, let it only be in weak Broths. If you'll consult Fallop. de Vuln. Cap. 18 or Boerhaave's

Boerhaave's Aphorisms, 192. you'll see what are most convenient & in what form. I shall give you a few particulars, and refer you to Authors for the rest where you may pick and chuse.

Let the Patients drink be Emulsions of the cold Seeds, or broth of (rubs, or Milk, or milk and water. For his Meat, Chicken broth & head. Water being made pleasant with the Squeeze of a Lemon & a little Sugar, boiled or roasted fruits, boiled Pophenbs, such as Lettuce, Spinage, Beets. It would be a very idle task to run over all the little things that the kitchen affords, since every old woman in Town (if you'll only tell them what is to be shunned) will muster up a hundred different dishes in a trice; Celsus's rule was meat of good Juice, shunning every thing that is acrid. The reason is plain, because they stimulate so much, that they would soon raise Inflammations, Fevers, &c. Under this Denomination are comprehended all salt things, Spices, sharp Ingredients, all fermented Liquors, as all Wines or Spirits drawn from them.

We have already cautioned against things that easily turn putrid, or may occasion putrefaction, such as Flesh, Fish, strong broths, Alkaliescent herbs, &c. Cresses, Radishes, Mustard &c and also against heavy meats or ill to digest, as all hung reested meat, Fat things &c. because when Nature is weakened they can't be sufficiently concocted or prepared so as to afford good Liquors for the supplying of what is wanting; however in some cases we are not to stick to a rigidity to these rules, for we are always to consider the state and condition of the Patient, if 'tis a weak old person or one that is faint with loss of Blood, there is a necessity of giving them some things to support them. This Celsus Lib 5. cap. 26 D. 25. takes notice

54 takes notice of, for after he has observed a spare diet, but, says he, there is no rule in this without exception, for we are always to have a regard to the strength of the Patient's body, his weakness may oblige us to give him meat immediately, sparingly however, and in small quantity, as much as can sustain him, and many like-wise who seem at Death's door by the loss of blood are to be refreshed with wine, which otherwise is most hurtful to wounds. And S. 30. after condemning its use, but, says he, if it is a superficial wound, wine is safer, and may, if not too cold or given in great quantities, help the filling up of the wound. —

The season of the year is likewise to be considered. This Celsus observes, when he tells us, that the Patient is to drink warm water in Winter, and in Summer may be allowed cold. And these things that are cautioned against have always a worse effect in Summer than in Winter, when frequently some of them are necessary to promote a brisker circulation, which otherwise would turn very languid. We are likewise to have regard always to the Patient's former way of living, for you know the common Proverb, Custom is a second nature, and it is certainly so, that when a person has been accustomed to a certain way of living, sudden changes from it prove of very bad consequences to him. This the late war gives very evident proof of. The English Soldiers live mostly of flesh, whilst the Dutch live most on herbs and roots, and in their different hospitals when wounded were treated accordingly. But whenever the English were carried into the Dutch hospitals, or the Dutch Soldiers lodged amongst the English, as frequently enough happened, seldom any of those who were taken off their ordinary way of living, escaped, but all died. The

The former turned faint and languished with the low diet of Vegetables, 55 while the last fell into fevers &c. by the English high feeding. Whistman B. 3. C. 1. confirms this by several instances, particularly of one Edmund Brown, a Gentleman's Servant, who was used to drink vast quantities of Wine; he was bit in the back of the hand by a Monkey and so long as he was kept from Wine he always grew worse and worse, but after he was allowed it, mended daily. Bonet. Anat. Pract. Lib. 4. Sect. 8. Obs. 26. tells us of a German Gentleman who by being confined to Broths and denied the use of Wine entirely by the Surgeons in Paris, died of a wound in the Hip, which, by all the symptoms before his death and examination after it, appeared to be perfectly simple.

Not long ago a Taverners Cook in London (these sort of people you know are much used to toppling) had the cartilaginous part of his nose very near cut off by his fellow-servant, his name was Daniel McLean: He had lost so much blood before I saw him that he was quite faint. When I stitched the wound I ordered Broths & Berries with some wine: However this did not please him, and he continued faintish with pain in the wound: and at last began to be troubled with a Diarrhoea, till his Wife gave him some draughts of two penny and a dram to comfort him, upon which the symptoms abated and in ten days he was cured.

The last thing we are to regard in ordering the Patients Diet is, the other diseases he labours under, or what attend the wound. For example, if he is febrish, the lower the diet so much the better. if he is Hydropic, strengthening food will be more proper, & therefore according to the different Causes, there may be as many different

56. different Regimens prescribed. The same may be said of the internal Medicines which require just a great Variety, tho' the most part of Authors without any regard to the different Constitutions of people, order a few, what they call, vulgar Decoctions, Elixirs &c. which they propose as fit in all Cases, when in the mean time, in order to prescribe aright here, a through knowledge of almost all the diseases that can happen, & of the whole Materia Medica is most requisite. Whence you see the necessity of what I affirmed at first, that a Surgeon should likewise understand the other parts of medicine —

Now to go through all the Suppositions that may be made would be to give a whole System of Medicine & transact the whole Materia Medica of Medicaments, which is not at all my present purpose, only let me refer you to the Clases which Boerhaave makes in 198 Aphorism and the List and Formulas you may find in his. M. M. or if you would still enquire further, consult Cullen Obs. 3. 6. 41. Wiseman. B. 5. Claudin. de Ingress. ad infirmos Lib. Cap. 31. Barbett. Chirurg. Lib. 2. Cap. 8. Berenger de Fractura Cran. Cap. 31. —

We come next to consider the other Nonnaturals, in the management of which there is no such variety, and First, The air ought to be dry with a temperate heat without any ill Smelling Vapours conveyed along with it, for Moist Air is ready to occasion Rheums, Coughs, and if too hot, as in Summer, it causes large Suppurations with acrid matters, and a tendency to Inflammation, wherefore we ought to cool the Patient's Chamber by opening the windows where a gentle Breeze flows, by placing pichers of Water with Plants that when cut easily suck it up, and send some of it out again with an

an Aromatic Smell, as the Boute, Mint &c. If it is too cold we 57.
are to remedy it by fire. The putrid ill Smells conveyed along with
the Air proceed always from some corrupted thing, and may be the
occasion of several diseases, therefore the Chamber should rather
be perfumed with a little Aromatic Smell such as the Patient
pleases best. It is a Rule handed down by the best Practition-
ers that we should never give strong Purgatives to a wound-
ed person, because they stimulate the Solus, raise a little fever,
and thin the fluids too much, but at the same time we are not
to allow the Patient to be bound in his belly, because the faeces
alvinae by the heat of the body turn more and more putrid, and
communicate some of it to the mass of Blood, we are therefore
by Laxatives, whether given by the mouth or in form of Glysters,
to prevent this, as Hippocr. the Effect: especially direct; these Me-
dicines that soften and loosen the faeces, called Emollients &
Laxatives, as fat broths, expressed Oils &c with those that
have a little stimulus along with them, serve only for discharg-
ing the Stercus and are called ΕΚΚΡΟΤΙΚΑ. The most in-
practice of these are Prunes, Rapia, Manna, Tamarinds, Sy-
rup of pale Roses, Rhubarb &c. of which in Boerhaave M.M.
you may see a list with their several Doses, which are always
to be proportioned to the Age and Strength of the Patient, but are
these set down for an ordinary man, I mean, a middle aged strong
man.

Nothing, you know, refreshes a man more than Sleep, & the want
of it is the greatest fatigue that can be, and of itself ready to
bring on several diseases; Now, in Wounds one of the greatest
reasons of want of Sleep is Pain, wherefore by Anodyne medicines,
or

58 or Allayers of Pain, we are to procure our Patient rest, but as these may be of different kinds according to the Causes of pain, which are different, we cannot condescend on those till once we treat of the Causes of pain, which we shall do afterwards, when we come to the Accidents and Symptoms that frequently accompany wounds. The next way that we have of procuring Sleep is, by such Medicines as do not indeed remove the Cause of Pain, but dull our Senses so as not to be sensible of it, such are called Narcotic, Poppies and Opium are the only two that we know to have this effect, which may be prepared a great many ways, and given in different forms, as is abundantly evident to any who look into Dispensatories, and is so commonly known, that I think it needless to present you with any Formula.

All ruffling passions, as Anger, Grief, Joy &c. are to be avoided and the Patient kept as free from care and as in good humour as can be, for our body always sympathizes. Uncontestable Examples prove the bad effects of these passions. Hilsan. Cent. 1. Obs. 23. tells us of two who were wounded in the hand, and by laughing at a merry tale raised a terrible pain in the Wound, and thro' the whole Arm, insomuch that they were ^{in hazard} ~~affected~~ of falling into Convulsions. In his Obs. 17. Cent 1. he relates the case of a youth, who after a wound in the head and fracture of the Skull was in a fair way of recovery, but being provoked to anger immediatly turned feverish and Phrenetic, and died four days after. Obs. 18. informs us of a man whose temporal artery was cut, and by Medicines applied the Haemorrhage for five days was stopt, when by some of his friends he was put into a great anger
by

by which the Artery burst out a bleeding again and with great 59
difficulty was stoppt.

All acts of Venery are to be shunned, for these increase the Circula-
tion much at the time, and enervate it afterwards. Aët. Obs. 9.
Cent. 1. proves the ill effects of this by the example of a young
man, who was wounded in the head with a fracture in his skull,
after five weeks when the wound was almost cicatrised, by lying
with his wife, fell into a fever and died. Boerhaave relates
just such another case that happened at Leyden — Hildan. Obs. 22.
confirms it still further, by the history of a young Gentleman
whose left hand was cut off, and the stump almost skinned
over, who by such mismanagement threw himself into a fever,
Delirium, Convulsions, and died. — Ambrose Parey in his Book 16.
Chap. 14. assures us that he has seen a great many instances of
this nature. — Berengar. de Fractur. Cran. Cap. 21 takes a
deal of pains to enjoin this, and Cap. 13. reckons it a miracle
and by the particular direction of God that a Patient of his re-
covered, who was wounded very ill in the head, and had been
base with a whore every day or every other day from the beginning
of the Cure. —

All possible Quiet and Rest must be recommended, as Celsus Lib 6.
Cap. 26. S. 28 says, Rest is one excellent medicine; for motion &
Walking is not fit for people but in health, yet 'tis less dange-
rous for people wounded in the Head and Arms, than for those
wounded in the lower Extremities. The reason why it should be
so hurtful is plain, because the motion of the body increases the
Velocity of the circulating fluids, & therefore liable to cause
Obstructions, Inflammations &c. And he should not only be quiet
himself

60 himself, but every thing about him should be hushed. *Itidan. Centi.*
No. 2. hands down the case of a Boy of fourteen years of age, who
was brought to his grave attended with dreadful Symptoms, by
Music playing and people dancing in a Chamber near him, when
he was wounded in the head and in a fair way of recovery. —

The most part of Authors, without distinguishing with & in what
cases, oppose the opening of a Vein, but to old sickly weak people
or where a good of blood was lost at the wound, this would be dan-
gerous, and in slight superficial wounds, needless. But if it is a
young, full bodied person; or where there is fear of a fever, or in-
2. flammation, 'tis absolutely necessary. Consult Wiseman's *Observat.*
Book 5. & you'll see this verified —

Now after finishing the general distinctions in the Cure of
Wounds concerning the *Nonnaturals*, we come to the manner of treat-
ing the wound itself, and, as I told you already, the first method
of Cure that we shall touch at will be *Sysarcosis*, since 'tis
necessary to be known before we can understand the *Symphyses*,
and when we come thus last, we shall consider, what sorts of
Wounds require the one method of Cure, and what the other —

The *Sysarcosis* is wholly the work of Nature, & all that the
Surgeon has to do, is to keep all her Instruments right in order,
which consists in preserving the Vessels in a right Condition, for
the Circulation of their Liquors, and furnishing Liquors fit for
supplying defects, which is owing to the general Regimen, and
Lastly, to prevent the corruption of these Liquors in the Wound itself,
upon the supposition that we make of it's being one of these
simple Wounds we described first of all. Now, in order to
the Cure of such a wound, we are to debar as much as possible
the

the access of Air to it, for this contracts the Vessels & coagulates 61.
the fluids, by which, as I don't doubt all of you have observed, when
any wound has been exposed to the Air for any time, it turns
blackish, is cover'd over with a crust, from under which a thin icho-
rous matter rushes out, consequently it impedes and frustrates
Nature in her work, whence it naturally follows, that we should
remove the Dressing only as often as necessary for hindering the
matter to turn acid, or where large quantities are separated to
prevent its being absorbed by the mass of blood. This Caesar May-
gatus de rar. vuln. curatione Lib. 1. Cap. 32, 33, 34, & 35,
and Belloste in his Chirurg. de Hospitali have taken a great
deal of pains to inculcate, tho' as the most part of Authors who
are fond of their own Invention, have carried the matter too far.
Felsus Lib 5. Cap. 26. S. 27. seems to recommend every third
day to have it opened out. Aquependent. Lib. 2 Cap. 7. orders
every third or fourth day; but there is no certain rule can
be given for the precise time. What I generally take for a Rule
is, to remove the Dressing, whenever the Patient begins to feel
any Itching in the part, which is a sign of a little animosity,
but not so much as to destroy any of the parts; and I have found
it in several cases which I could instance, to succeed very well.
It is true, as Aquepend. observes in the Chap. aforesaid, that the
Patients frequently think themselves neglected if they are so used,
& oblige you to dress it oftner to their own cost —
The medicines used here are gentle vulnerary Balsams which
irritate but little; Authors give very large Catalogues of them,
and no wonder, since every one may vary them according to his
fancy.

62 fancy. I shall not trouble you with reciting any except those most in practice and recommended by those that are esteemed the best Practitioners, referring you to these books where you may find the rest of them. —

Bals. Peruv. Lucatilli, Irroravenli, and Liniment. Arcaei are the principal. The rest you may find in Celsus Lib. Cap. 19. Sennert. Lib. 5. part. 4. Cap. 9. Ambrose Parcy Lib. 10. Jacob. Michael Operat. Med. Chirurg. Part. 2. Cap. 6. Barbette Lib. 2. Cap. 8. Gen de Chauliac Trait. 7. Wiseman. Lib. 5. Boerhaave. m. m. yet I cannot pass by a few Medicines that are cried up by their Patroners as if nothing could come near them. And 1st Paracelsus his Ungt. armorum, his own Description of it is this R^y Urina, or the mops or mould that grows on a human head exposed to the air, ℞ij, Mummy ℞ss. Finiqued. human. ℞ij Sarg. human. ℞ss. Ol. Lini ℞ij Fol. Rosar. Bol. Armen. ∞ ℞ij M. f. Ungt. S. A. By anointing the weapon only with the Ointment the wound was to be cured. If you have a mind to be fully informed of it, look to Sennert. Lib. 5. Part. 4. Cap. 10. — Berengiar. de fractur. Crur. commends exceedingly what he calls his Ceratum humanum, telling us he never saw its match, and of its doing miracles, the description of it with all its preparation is too long to be inserted here. I refer you to the 4th Chapter of that Book, where he likewise gives the Receipt of his Ungt. Matr. Syloij, which he reckons next best to his Ceratum humanum. Boyle in his Medical Experiments, or as it is in the Acta Eruditorum Lipsij 1694 recommends the Succus Chelidon. as an excellent Balsam

Balsam for recent wounds; In these Acta Jan^{ry} 1695. he gives 63
us this Receipt from Pomels History of Drugs, of this Balsam which
is very much commended in the Cure of Wounds. R, Treebin. q^{ts}
℥ss Liquid. Rubi. Zij Bals. Copayb. Gum Tacamahac. Caran.
a. Zij Mastich. myrrh. aloes, Thuris, Sangu. Dracon. Sarcocol.
a. ℥i ss M. f. Bals.

Aqua-pendent. Lib. 2. Cap. 7. describes a Balsam that was re-
commended to him as an excellent Ulcerary, inasmuch that its
Composition was discharged in Spain, because the people trusted
so much to its efficacy in curing them, that they were constantly
quarrelling and fighting. See it in the place cited, the receipt of
it and the manner of using it. I don't think it worth while to
mention their Sympathetic powders, Charms, & Incantations that
some people have pretended so mighty matters by, since they
only serve to abuse credulous people and drain them of their
money—

Now, whichever of these Balsams you make use of, the manner
of applying is, either by warming a little, & dropping them into the
wound, and filling it up with Pledgets, Dosils, or Tents, or else
you cover these Pledgets &c with them, and put them into the wound
till it is filled up; I suppose it will be needless to explain what
a Pledget is, or Dosil, or Tent, since none can be thought to be so
ignorant as not to be acquainted with them; You know, they are
commonly made of the drawn Threads of Linnen, called (Radic),
& by the French Charpie, or else of fine Lint or Tow without
twists, with these the wound is to be filled up, so that the Extre-
mities of the Vessels may be gently compressed, but beware
of

64 of crowding them in, or stuffing the wound with hard Tents, for by this means you'll press the Vessels, so much that they can't be stretched out, which you know is necessary for supplying what is wanting; you'll hinder the Liquids from being evacuated, irritate the parts, bruise the tender vessels, whence Obstructions and Inflammations. You need only peruse Magat. Lib. 4. Cap. 25, 26. Bellot Chirurg. de Hospital. and Wiseman Lib 5. Cap. 6. to be convinced by manifold repeated Experience of the mischief of this way of doing. When the wound is thus filled up as directed, cover all over with a Plaister, which sticking close will keep the other dressings on, and by keeping in the heat and preventing the Access of Air, will help the Concoction of Pus, and truly if it has this effect it is all that is required of it. Authors seem very nice in the choice of their plaisters. What is commonly made use of amongst us is Diapalma, which is one of the simplest we have. If there is any swelling near the Wound which they would digest or discutt, Diachylon cum Gummis is applied, or simple Melilot; If it is in a part where by the rubbing of the Cloaths or otherwise, the dressings are in hazard of falling off, or where the Wound is large, above the Plaister we apply proper Compresses and Bandages.

Now, in remove these dressings and applying new ones, we must take care to have every thing ready and in due order for the new one, before we remove the old, else we expose the wound to the Air whilst any thing that is wanting is getting ready, we undo them as quickly & with as little pain to the patient as possible, concealing the ungrateful sight of the matter as much as possible, if there is a great quantity

quantity of it, from his view, then clean the wound as softly and gently as you can with a little Advice, soft rag, or false lent, for rough handling causes pain, from whence fluxion of humours &c. and breaks off tender sprouting extremities of the Vessels, which hinders the Wound to heal up. Apply the new dressings as quickly & neatly as may be, and place the Member in a convenient situation, if there happen to be more wound than one, never uncover all at once, but dress one before you expose the other. —

However, if the Liquors be brought to the Wound in too great quantities, the fibres bruised or Vessels obstructed or swelled, the first will produce Sanies, which Celsus Lib. 5. Cap. 26. S. 20. describes a thin whitish Liqueur, which is still worse if it is in great quantities, too thin, pale, livid, or black, ropy, ill smelted, & rots the parts, the bruised deadned fibres appear like a Slough and the swelled obstructed Vessels make a shew of filling up the wound, but may be distinguished by the palish colour, and softness, this is commonly called spongy or proud flesh, on which a firm Cicatrix will never draw, but it will be constantly breaking out or corrupting below; the Cure of the Sanies & Slough is much the same they commonly going together, viz. by Deterging and digesting Medicines. The common Digestive made use of is Terabin. Venet. in Vitell. Ov. dissolut. By adding a little of the powder of Myrrh and Aloes, and some Mel. Rosar. It becomes also detensive Mercur. precipit. rub. mixt with a little digestive. Liniment Aescul or Basilic. does exceeding well for both these purposes, and I have seen Honey with a little Tincture of Myrrh and Aloes prove an excellent Detergent. Aquapendul. Lib. 2. Cap.

66 Cap. 3. much commended as a detergent this Composition
℞ Succ. ebul. epij. Vin. mell. Axung. Porcin. Butyr. recent.
℥ ℞. ℥. f. s. a. Ung^t. Ung^t. Epyptiacum mundificat.
ex Apis were wont to be much used in this case at the Hotel
Dieu de Paris. If you want the Choice of more see Hippocrat.
de Ulcerib. Celsus Lib 5. Cap. 3. 18. p. 21. Cap 19. p. 9
10, 11, 13, & 20. Aepapend. Lib 2. Cap. 8. Parry Lib 10. Bar,
& Bette Lib. 2. Cap. 7. Wiceman. Book 5. Easueatin. Trypny.
Med. are likewise of Service here frequently of which im-
mediately.

To remove spongy flesh we must use drying or corroding Med^s
as Esicciatives, which you may in Boock. M. M. such as
sang. Dragon. Bol. Armen. &c. A list of the Cerusses you
likewise have there, which are classed according to their differ-
ent degrees of Acrimony. The most commonly used and most
approved are, Allumen ustam, Mercur. dulcis præcip. rubr.
Vitriol. Roman. & Lapis infernalis. But if this spongy flesh
is not come to great height nothing does better than dry
dressings and a slight Compression. The Use of these Medicines
in these several Cases is to be continued till these Symptoms
are gone off and good equal white Pus appears in the wound.
When it comes to that, the new Substance will grow up daily, and
all we have to do is, not to disturb Nature in her Work. Now
because the constant applying of Unctuous Med^s is ready to cause
proud flesh rise, and that dry dressings may turn the parts Callous,
some people propose to have some of the Virtues of the Medicines
without these disadvantages which they effect by applying their
Pledgets

Regets after being covered, with an unctuous Meduine with the site uncovered neat to the wound. By this, say they, any of them that are of a penetrating nature will have effect upon the wound, whilst the rest that do the mischief are kept off, and at the same time the parts are kept warm enough for the concoction of Pus, which truly seems a reasonable enough practice, yet the common Method is by applying Succotins which are near akin to the first vulnerary Balsams sometimes made a little more digestive, and therefore are easily known by what has been said of these two heads. However, for further satisfaction consult Aquapendent. Lib. 2. Cap. 8 and Lib. 3. Cap. 4. Barbett. Lib. 2. Cap. 7.

You may see we have considered the Cure of the simple Wound of one we had easie access to apply our Med^y, and where the matter easily discharges itself. But it may happen that a deep wound may be made with a very small Orifice, whence there may be Hazard of a Collection of matter below, or an Abscess or an Ulcer follow, whence we may imagine all sound; to prevent which we are obliged to enlarge the Orifice, which is either done by cutting with your Scissors, Bistoury, or Lancet, or if the Patient perhaps won't agree to that, we put into it a piece of spongy ~~flam~~ Tent, which is made by dipping a sponge in melted melilot plaister, and squeezing it out again till the sponge is made very thin and kept so by the density of the plaister which yet remains in it. When a piece of this is cut and put into the Orifice of the Wound, the Liquids effused dissolve the plaister and leave the sponge freedom to recover its former dimensions.

68. dimensions, which by its Elasticity it endeavours to do, and consequently presses on the Sides, by which they are more separated, and the wound dilated. Any thing that swells by imbibing the matter will have the same effect, such as Gentian Root, Pilch of Edoe &c these are always to have a thread tied round them, otherwise we would frequently have difficulty to find them out as soon as the Wound by any of these methods is sufficiently enlarged, it becomes such a one as we have already discussed off.

The 2^d Case that may make some Alteration in our way of Management is, when by the situation of the Wound the matter cannot freely discharge itself. E. G. if an Wound is inflicted in the Leg, descending a good way down without the weapon's piercing outwardly below; if it runs deep, then by applying gradual Compresses, I mean, by placing thick Compresses at the lower parts, and making them gradually thinner as they ascend, and a suitable Bandage over them, we press up the matter to be discharged at the Orifice; or if the Under part of the wound is near the external Teguments, we make an aperture there, because it is fitter for the discharge of the matter, and allow the superior Orifice to close up. which aperture is made either by introducing your finger, probe or Dissector to the bottom of the wound, and there cutting with a Bistoury or Lancet upon it; or else, if you can get Mr. Delit's Instrument mentioned by Garsangest in his *Traite des operations de Chirurgie* Tom. 1. Cap. 2. which is a Stilet of about half a foot long with a Button at one end and a Lancet at the other; this is lodged in a Canula of

of Silver or Steel, made somewhat after the form of a Dissector, ⁶⁹
and serves for a Sheath to it; at the upper end of the Stilet by
which I understand that nearest the bottom, there is a Spring
which when left to itself draws the point of the Lancel within
the Sheath, but with a Thumb or finger may easily be press-
ed down, so that the Lancel shall appear about a finger breadth
out of the Sheath. This Canula without any pressure on the
bottom is introduced into the bottom of the wound, then the Spring
is forced by pressing on the button and the Lancel thrust out
of the Canula thro' the Teguments, and the aperture made, as
soon as that is done, the pressing force is taken off, & the Spring
draws the Lancel within the Sheath, and the whole Instrument
is brought out of the Wound. The advantage of this instrument
you see is, that it can be easily introduced, surely & safely makes
the Aperture, and is drawn out again without the hazard of cut-
ting any other part but what was designed; It would still be bet-
ter if it had a ring at the upper end of the Sheath into which
the finger placed would resist the Thumb while forcing down
the Spring which forces out the Lancel, After the Orificer is in
the most depending part, it differs nothing from our first Supposition,
only we may sometimes be obliged to use Syringes to introduce
our Medicines. All that remains in completing the Cure of
Wounds by Symparosis is, to cicatrize them, but since this is
the same in the method by Symphysis, we'll defer the Cica-
trize till we have finished that. —

You may remember, we told you the Method of Cure by Symphysis
was, to bring the parts separated together, and unite them, in
which

which we are always to observe, ~~what~~ to bring them as near as possible, which depends entirely on the knowledge & structure of the parts; This is performed by gently pressing them, till they come to such a state of Conjunction. This needs no directions for performing it, being so plain of itself. —

The next thing we are to do is, to preserve them thus united till the Fibrils, shooting out from each side and twisting in one with another, become firm and one Substance (which we may observe is a sort of Symparosis! They are kept thus united, either by Compress or Bandage or Suture, for the Fibula or Clasp of the Antients is quite out of practice. Bandages are more use of in longitudinal Wounds, i.e. inflicted according to the length of the Member; In wounds of the forehead of this kind the uniting Bandage is proper; but I am not to insist upon the proper Bandages, since that belongs to a place proper to itself. Only observe, if it is a single headed Roller you make use of in the Extremities, and the wound is in the inside of the Member, to begin the Bandage on the outside passing below then over the Compress, which is to be placed at the underside of the Wound, then over the Dressings which are supposed to be applied as in the Symparosis, except that they are only on the Lips of the Wound. If the Wound is on the outside, we are to begin the Bandage on the inside, running first down and then up. If it is a double headed Roller. Begin by applying the middle of it on the undermost part. The reason of both is plain, because this way of doing brings the Lips nearer and hinders them from separating by supporting the depending part, whereas if it were otherwise applied

applied the bandages would rather help to divide than unite 71.
them.

The 2^d manner of preserving the parts united which before were separated is, by Sutures, of which the Antients had a great many different sorts, which I purposely pass by, and shall give you none but what are still in practice. However if you have the Curiosity to know them, consult Celsus Lib. 5. Cap. 26. § 23. Aequapendent. Lib. 2. Chap. 5. Guidel. Flautiae Tract. 3. and all the old Surgeons —

The Sutures generally now in use are five, viz. The Dry, the Hairlep, the Interrupted, the Quill, and Glover's.

1.st then, the Dry Suture is nothing but one or two pieces of Cloth spread with some glutinous Styptic Preparation, so applied as to keep the Lips of the wound together, & is generally used in long transverse Cuts of the Skin, but especially in those of the face, where it is rather practised than any other Suture, to shun the deformity which the Thread or Needle of the rest are ready to leave. The manner of it is thus, After preparing of two pieces of strong Linnen or Leather, proportioned to the length of the Wound, with small digitations or stitching out of the sides, to be applied nearest to the wound, and small Straps or little Ribbons fastened to these little processes, or at reasonable distances from the Stem, (or instead of the digitation a Linnen hem will do) then spreading them with some sort of Medicine that sticks very close, as Empl. Stypt. Colliq, An. Deco. acruæ, Compositions of flour, Whites of Eggs, dried Blood &c. of which you may see a large Catalogue in Aequapendent. Lib.

72. Lib. 2. Cap. 5. on Barbett. Book 2. Chap. 6. — After they are thus prepared, apply them on each side of the wound at some distance from the Lips; but first take care to have the part shaven, because the hair hinders the plaister to apply so close, as they would do, and in removing of them these same hairs occasion a great deal of pain, and may thro' negligence help to separate the Lips again. You are likewise to notice what you spread the little Cloths with be of such materials as will melt with Heat, but don't mix with snatter. You are to warm it somewhat before you apply it. If it be made of those that dissolve in Water, you are to clap it on wet, and allow it to dry before you draw the Straps. Then a spoon as these little plaisters are firm enough, gently draw the Lips of the wound together, so that the part may again be brought to its natural situation, then upon the Lips apply a pledget covered with some of the vulnerary Balsams already mentioned in the Cure of Wounds, by Incision, upon this lay the Straps that come from the plaisters, which exactly answer to one another on each side, first with a slight knot, and then with a Loop or Rose, apply a small Compress above the plaisters on each side, then the bandage, which if it can be got applied ought to be the uniting one. The method of performing this Suture with one little plaister is, to have it the same way prepared, I mean, covered with such Symplic Staff as the two former, only so large as to cover all the Wound and some more wound about it. Garengot tells us Chap. 3. that Mr. Petit is of opinion, that it should have a slit or hole in the middle of it, which the French call Fenestone

fenestration or window'd. that the Surgeon may easily come at it 73.
to see what condition the Wound is in, and to apply medicines to
it, which without that window he could not do. after fastning
one side of the plaister on one side of the wound, the rest of the
dressings are the same as in the former. Now, after either of
these ways of operating you are to observe the condition of it
it from time to time, and slacken or straiten the Suture, renew
or let alone the dressings as you think fit, till once the sides
of the Wounds are perfectly grown together which will be in
a few days. The time which authors allow generally for the
reunion of wounds by Symphysis is ten or twelve day in large
ones, and two or three in superficial ones. See Wiseman Lib. 5.
Cap. 1.

When you are to remove your Stitches, which is done by warm:
ing them, if they are spread with plaister, or washed with
warm water if it is the other sort; tho' commonly the matter
coming from the wound insinuates itself between the skin and
them that they fall off of themselves.

2. The next suture is the Hairlip, so called because seldom used but
to the Lips when divided as those of Hares naturally are, tho'
it may be practise on any large gaping wounds, and loose pen:
:dulous parts. The whole of the operation is to introduce one or
more small needles & round thro' both Lips of the wound, then
fasten thread about them so as they may not come out again,
The Needles are to be chosen longer or shorter according to the
depth of the wound, they are more or fewer as it is in Length.
In order to introduce them, make from the lips either with
your

74. your fingers or the Instrument made designedly for this purpose of a piece of Steel pretty thick; slit at one end, at which 'tis thicker than at the other, and has shoulders, and within teeth, on this a Spring runs, which by being slid down towards this end presses the slit part close together and grips fast any thing that is within the slit, at the other end a handle is fixt. This the French call *Porte Aquile* or *Needle-holder*; after the Needles are introduced, wind either Thread round one by one, in the cross way that Taylors fix theirs, or make one Thread serve for all, by Beginning at the uppermost, then running below each mount up by crossing round the Ends, again descend to the next middle crossing, it is the same as in the first, and so on to the rest, making as many of these turns as you think sufficient for keeping. After your threads are fixed put a pledget with proper Balsam on the wound, and a little bolster on each side under the ends of the Needles, snapping off their points with a pair of cutting Forceps or Scissors, lest they run into the skin & hurt the Patient, over these apply a sticking plaster and bandage, dressing it from time to time as already directed till the Union is completed, then gently undo the dressings and threads, and keeping with your fingers the Lips from being torn asunder, draw out the Needles, leaving some little dressings on for a while, till the sides that the needles left are filled up —

3. The Third Suture is the Interrupted which the most generally used, 'tis performed by thrusting a threaded Needle thro' both lips of an Wound, and after bringing the lips together to keep them so by tying the thread. In small superficial wounds we

we make use of slight needles which are generally three edged, towards the point. In deep Wounds, crooked needles which are two edged are more proper, and all of them are bigger or less, according to the nature of the wound; they all have an eye thro' which the thread is placed and a furrow on each side behind for lodging for lodging the thread that it may not be too bulky, and difficult to go thro' for the same reason and to prevent its being clogged or swelled with the matter, and so fretting the parts that it touches. The Thread must be waxed and greater or smaller according to the depth of the wound. These needles thus prepared must be thrust in at a convenient and sufficient distance, which can't be precisely determined, since the larger & deeper the wound is, the greater distance must be taken from the lips of it, On that side where it must be drawn back, I say, it must be thrust in near the bottom of the wound. If it is a small one, at once you pierce the other lip too, but if it is deep, take out the needle at the bottom, and push it the same way from within outwards, as you did in the other from without inwards, bringing it out at the like distance from the Lip; When the Wound is deep and the Teguments tough, the Operator has a great deal of difficulty with his finger to thrust the needle thro' wherefore he makes use of the *Porte Aquile* or of Mr. Deltil's new Instrument described in *Garangeot* (cap. 2. thus, a Ring with a small pipe out of it, upon which a little in form of a funnel turns as upon an Axis, which Ring is put on one of the Operator's fingers or his Thumb, and the eye of the Needle, and the Funnel in order to thrust the Needle thro' the lips of the

76. the wound; if there is a necessity to make more than one stitch you go the same way to work; only remember to begin always with the middlemost or at the ~~angle~~ of the wound, if any be. Mr. Petit, as we learn from Garangoot Cap. D. advises, contrary to the common practice, all the stitches to be made with the same thread without cutting it off till all be done, because, says he, when the patient hears the Scissors clipping the thread he imagines the work done, frets and turns uneasy when he is put to new pain, but whether this or drawing thro' such a long thread as after this way there is a necessity of doing, be the greatest inconvenience I shall not pretend to determine. However, which of these methods you practise, after a sufficient number of stitches is made, which Wiseman B. 5. C. 1. determines to be always one less than the wound is inches long.

E. G. If the wound is two Inches long, one stitch is sufficient, if three, two is sufficient and so on. The Lips must be brought together by an Assistant or Servant, and then you lay the threads beginning at the middle or angle with a single knot towards the upper end of the wound, upon this you place a little small Compress, or rather as Garangoot tells us, Mr. Thebault would have is a little bit of rolled Wax Taffety, which is firmer, & does not imbibe the moisture that comes from the Wound nor ready to fret the parts, above this you are to make another single knot, after all the threads are fastened on each of the knots put a little Compress which may hinder the other dressings to stick to them, and so may tear the Stitches in removing them, then on the wound itself apply a Pledget with proper

proper Balsoms, and a plaister over that, or rather a Compe^{ss}, 77.
dypt in some proper Medicine to prevent Inflammation & Gallay
pain, of which hereafter, and lastly a bandage to keep all
firm. Beware ⁱⁿ removing the Dressings, which you must do
every two or three days, not to pull the threads or separate
the Stitches, and you are to proceed by the same rule as in
the Symparcosis, till once the Union is compleated, which
will be sooner or later, according to the Wound — When you
slide the point of your Scissors under the threads and cut
them, then holding the Lips firm together with your left hand,
pull out the threads gently with your right, for you are not
to let the Stitches remain any longer than is just necessary,
because the threads cut the flesh and leave pretty deep holes
behind them which are sometimes troublesome to cure, Besides
the deformity of their Scars. Frequently upon Inflammation
pain, &c. happening to the part, we are obliged to undo the
Stitches till once these symptoms abate —

4. The fourth species of Sutures mentioned is the Quill, we
is seldom used, except in the Gastrorrhoea or large Wounds
of the Abdomen and Stitching of Tendons, tho' it might very
well be put in practice in very deep Wounds of other parts.
where we are afraid the threads of the Interrupted Suture
would by the strong contraction of the Lips of the Wound be
enlarged hezard of cutting quite thro'. But since the manner
the manner of performing it is the same in whatever part it
be, and that we shall be necessarily obliged to mention it in
discoursing of Wounds of the Abdomen, we shall defer it till then.

The

78. The last sort now used is the Grovers, which is only performed when the Intestines are wounded, and therefore will come of course under the same Head as the former. 'Tis true indeed the Antients performed it in Wounds attended with an Hemorrhage, but certainly to the great loss of the patient, who was thereby in hazard of a Gangrene in all the parts round about, or at least a large Ulcer must ensue —

Now these Sutures are only fit for and put in practice in simple clean recent wounds, but by no means to be used when a large vessel is opened, and a great Hemorrhage attends it, because the blood not finding a free exit will disperse itself thro' all the parts about, and bring on Abscesses and Gangrenes &c. nor can it be done with safety, after by its long continuance, it has degenerated into an Ulcer for by this you'll easily see the Consequences might be as bad by the matter, which should evacuate, being pent up; besides, this same matter hinders the reunion, nor when it is attended with a considerable Contusion, for the contused parts must first separate, before Nature can perform her Work; The same hold good when it is internally crushed over, or if there is a great loss of Substance, that is, if a considerable piece of Substance is cut off, because it would stretch the parts too much, therefore create too much pain, to bring the separated parts together, and if they were cicatrized, it would then be so deformed as to be a continual reproach to the Surgeon; Neither are we to attempt it if in the Operation there was a manifest risque of wounding any large Artery. We are likewise to let Sutures alone, if there is a great Inflammation & Tension on the parts, because by performing it, it would but increase the

the Symptoms, which might prove dangerous. If any extraneous 79 -
body is in the wound it will be needless to stitch it, because this
would occasion an Imposthume afterwards, for do what we would
the parts would not unite till once that was extracted, especially
if it was any poison, it would be madness to shut it up, seeing
you would inevitably destroy your Patient by its getting into
the Mass of blood: Nor are we to venture upon them in a part
where motion is absolutely necessary, for instance, in the Thorax,
because by that motion the Sutures would be torn, consequently
the Wound made worse than it was at first. Hence you see
what wounds are to be cured by Symparosis or Incarnation, to
wit, all those that are discharged just now to be treated by
Symphysis, whilst all the other Species belong to this Class —

You may remember when I came to finishing the Cure by Sympar.
osis, I told you I would defer the Cicatrix till I had finished the
Symphysis too, as being common to both. And truly we ought to
take abundance of care in this. If it is in a place that is seen
especially in the Fair sex, it will be a fault never to be forgiven
if it is remarkably deformed. The great matter is to take care
of the former, part of the Cure is filling up the wound with good
firm flesh, and that to a sufficient height, shunning all things
as much as possible that may make great loss of Substance, as
Caustics &c or may force on a skin before the wound is perfectly
filled up, as Astringents, too great Desiccants. after it is once
beginning to fill up the Sides gradually draw on a skin, allow
it to cover all over, when it is grown sufficiently up, then confirm
and strengthen this Skin or Cicatrix, and bring it to a right
Colour.

80. colour, by washing it with warm Sp^t. of Wine or Brandy. &c
or Lime Water, covering it with Ung^t. Desiccat. rubr. de C^r
mepha &c. for a full account see Celsius Lib. 5. Cap. 6. S. 30, 36.
Keller Institut. Chirurg. Lib. 2. Cap. 4. Forrest. Obs. Chirurg.
Obs. 26. Lib. 6. Aquapendent. Lib. 2. Cap. 9. Barbett. Lib. 2.
Cap. 3. Boerhaave. M. M. S. 217.

We proceed now to consider the Wounds of the other parts of the
Body, and first as in the Diagnosis of a Small Artery remote from
the Heart, which we told you if quite cut asunder retired under
the neighbouring parts and was stop'd of itself, therefore the Cure
differs nothing from a simple wound, which we just now finish-
ed; but if it happens to be only in part cut, which was our
second supposition, it will bleed for a long time, wherefore if we
can come easily at it without hurting any considerable part,
by cutting it quite asunder, you reduce it to the former Case;
consequently to the first, or else by compressing with bolsters, espe-
cially those called Pyramidal, which at first are very small
but gradually turn longer, and Bindage; or if that can't be
applied, by putting on Astringents or Caustics, (of which imme-
diately) endeavour to stop the Hemorrhage.

If it is a large Artery quite divided, there is great hazard of
the person's losing his life (unless speedily remedied) by the efflux
of Blood. To do this, several Methods are proposed, First, by
Astringent Medicines which contract the Solids and coagulate
the Fluids. These most commonly used are Warm Sp^t. of Wine
or Oil of Turpentine; which sometimes have very good effects, and
hence this last is frequently used in Amputations. Bol. Armen.
Sang.

Sang. Dracon. Rad. Tormentel. Mastick, Thus, Aloes,
with the White of an Egg; the Repilus Lupi, or what Children call
the Devils Box, is recommended by some. Galen's powder, which is
Aloes p. 1. Thur. p. 11. Haus. 2. S. mixt with the Albumen Ovi.
This is recommended by Wiseman and several other good Practi-
tioners. Celsus Lib. 5. Cap. 26. S. 21. orders pieces of dryed
rags to be crammed in upon the Vessels, or, if that won't do, let
them be dipp't in Vinegar. If you have a mind for still farther
Variety, See Hippocr. de Ulcer. Celsus Lib. 5. Cap. 8. 18.
Haller. Institut. Chirurg. Lib. 3. Cap. 4. 5. Aquapend. Lib. 2.
Cap. 10. Enchiridion Chirurg. Lib. 2. Cap. 2. Barbett. Lib. 2.
Cap. 4. Wiseman Lib. 5. Cap. 2 and Boerhaave. M. M.

Whichever of ~~these~~ you pitch upon they are to be applied upon
the Vessel itself with either Dosils, Pledgets, or Linnen rags,
all covered with some such Medicine, fill up the Wound with these,
and apply a pretty tight Bandage over them: If the blood is stop't
with this way of dressing, suppurate and digest as well as you
can, and going on in the Cure as in a simple Wound,
only for several dressings after the Application of the Astringents,
don't remove the Pledgets or Dosils nearest the Vessel, & deal
very gently with the rest for fear of making it burst out —

There have been several infallible remedies proposed for blood-
ing; but in the end all prove to be Compositions of these Astrin-
gents, or the Corrosives that immediately follow, out of which two
Classes indeed a prodigious variety of Compositions may be con-
trived. The most famous are these mentioned by Dionis in his
Operations de Chirurg. 9. Demonstration & in the Philosophical
Transactions

82. Transactions, N^o. 94. 95. Abridgements, Vol. 3. p. 252. we have an Account of several Experiments made with the French. and in N^o. 208. Abridg. p. 252. of D^r. Colbatz's Symplic, we appeared to be a strong Caustic, but neither of them had the Force for Success. Corrosive and Caustic Med^s. are reckoned still more powerful than these, for they not only act as Astringents, but likewise destroy the parts, and draw on an Eschar or Crust on the mouth of the Vessels. Those made use of are Vitriol. Alb. & Romanum, Lapis infernalis or Caustic Stone, Sp^r. of Wine, Oil of Vitriol &c. These are applied immediately to the mouth of the Vessel whilst the rest of the Wound is faked up with Astringents; they create intolerable racking pains which may be ready to throw the Patient into Convulsions, especially if any Astringent is joined with them, & however Authors of no mean Note, particularly Wiseman Lib. 5. Cap. 2. recommends, tho' this last Ingredient never misses to be of bad consequence. —

All these Medicines labour under several other Inconveniences, as the destroying the neighbouring parts, whence, if another Artery is near, it may by them be opened, as Boerhaave used to assure us happened to a young Gentleman at Leyden who was wounded in the Subtil Artery, and cost him his life. Then when the Eschar falls off, the Vessel may again bleed, and there never misses to be a great Suppuration and deep Wound See Wiseman Lib. 5. Cap. 2. Obs. 2. & 5. wherefore I would rather prefer the actual Caustery which does not pain so long, nor spread further than we design, and does as well. — This is performed by guarding the parts about by applying Refrigerants, such as Alumen, Saccharum Saturni dissolved in some Rose

Rose water, Vinegar, and the White of an Egg, then introducing upon 83.
the mouth of the Vessel a Canula or Pipe thro' which a red hot Iron
is thrust, which in a moment makes an Eschar & raises a crust
that stops the bleeding. Then immediately both Canula & Caustery
is taken out. 'Tis true there is the same hazard of bleeding af-
ter the Separation of this Crust as in the former method by Po-
tentia's Caustics. —

An instance of the Success of this way of doing I can furnish you
with from a near relation of mine, who was wounded in the mid-
dle of the Inside of the Forearm between the two bones, whereby
the middle Artery was opened; The Surgeons in vain applied Es-
charotics and tight Bandage with Compress, he still continued bleed-
ing till he was so weak that they could hardly distinguish
whether he was alive or dead, when this method of the red hot
Iron was proposed and after he was cauterized the bleeding
ceased, and he recovered. But I cannot miss observing, that the
straiter Bandages the Surgeons applied, the more he bled, and
when the dressings were quite off, very little blood came out, w:
did not a little surprize them; where had they but considered
the Compression they made did not at all affect the wounded Ar-
tery, ^{but bore hard on the Cubital and Radial artery} they must have plainly known that this must necessarily
have happened according to their way of management. —

Now, because of the Uncertainty of all these ways of doing & Incon-
veniences that attend them, the best Practitioners chuse rather to
Try the Vessels where they can come at them, for this holds firm till
once the Extremity of the Artery is shut up; none of the neighbour-
ing parts are much hurt by it, and no great Suppuration or
Cavity is made. This is done by introducing such a Needle as is

84. already described in stitching with a waxed Thread, and tying two simple knots or one simple one and a Loop firmly upon the Vessel, a little above its Aperture, which is easily discovered by unloosening the Tournequet, taking in a little of the flesh about it to make it the firmer, but not much, because all that the Thread grips must fall off: If it is an Artery that communicates with an Artery below, there will likewise be a necessity of tying it also below the Aperture. Mr Cooper's Philos. Transact. N^o 240 p. 1179 moul's Abridgement Part 2. Cap. 5. gives two Examples to enforce this, and the reason is plain, because there being no Valves in the Arteries the Blood will easily flow backwards in them, and the case be just as bad before the Artery was tied above, for which reason there should be two or three threads introduced in the needle, which may be in readiness to secure any Efflux of Blood from these Communicating Branches, upon the knots of the threads there are small little bolsters of Linnen to be applied dy'd in some Styptic Liquor, and above that Pledgets and Dossils armed with Astringents, then Compresses and Bandage. Let it remain thus for some days, & at renewing of the Dressings, gradually take out the Pledgets, not stirring however the little bolsters or threads, till they fall off of themselves by the Suppuration which you are to promote by Digestives. As soon as these are suppurated it becomes of the first sort of Wounds, which we already told the Cure of —

You see that in all these different ways of curing the Apertures of the large Vessels, there is a necessity of applying Compress and Bandages; The best & most effectual Compress is the Pyramidal which

which is but small at the part but gradually grows larger. The design of this figure is, to bear harder upon the parts, that need it, while the neighbouring parts are saved, consequently, not so much in hazard of bringing on a Gangrene, but stopping any other Artery that runs near to the wounded one which may supply all below with Blood. Now this sort of Compression may and sometimes does perform the Cure of itself without the assistance of any other of the methods, viz where there is a Bone to resist it. For, by placing the half of a Bean, a little chaw'd paper, or a piece of money nearest the wounded Artery, this will be pressed so between that hard Body and the Bone as to be entirely stop'd. Witness, the burning of the Temporal Artery — The Bandages will differ according to the different parts, but the description of these rather belong to a Course of Bandages than to this present Subject. The Spare Diet already recommended must be diligently observed in this case, and if the Body is plethoric, Blood letting is very necessary, with keeping the Body cool, and shunning ruffling passions; Never trust much to the use of Internal Medicines for stopping of Blood, because if they act either as Coagulators of the Liquids, or Contractors of the Solids, they'll never get into the Mass of Blood as such, or in such small quantities as can do little service, the Physicians in Hemorrhages of all sorts frequently prescribe these astringents, as Dulc. Sang. Dragon. Hilbet. Sperin. Colts (which last is esteemed by several an infallible medicine) and Styptic Waters. Samzweerde Obz. 73 has the Case of one who was cured of an Hemorrhage upon an Wound of the Back below the short Ribs, by eating Flanders Pease and Turkey Beans

86 Beans, after all other Medicines for stopping the flux had failed. The Ancients used to lay great Stress on Revulsions, as you may see in Aquependent Lib. 2. Cap. 10. which they did by Cupping, Anointing, Bathing &c. in the parts at a distance from or opposite to the wounded Artery, but these have no great effect, since the Blood has a free access at the opened Artery that it has a passage to any of the parts where these Revulsions are made: And it is a known Case, that wherever there is the least resistance, there the Blood will run most plentifully. —

You may remember that in the description of these sorts of wounds, I told that if it was the only Artery that was distributed to the parts below, it must of necessity lose all Sensation, Motion and Nourishment, and therefore be just a piece of dead flesh, and gave several Observations from Authors to prove it, wherefore some Authors advise the immediate Amputation of the Member, as for instance, if it is the Axillary Artery that is cut, they would have you immediately to amputate the Arm at the wounded Artery, but you had better go on to the stopping of the Haemorrhage, and wait for some days, observing from time to time in what condition the Arm is, for sometimes Nature crosses in the distribution of the Blood vessels, and instead of one forms two. I have seen this in several Subjects, and particularly in one I have by me with the Vessels injected, in which the Axillary Artery splits in two, the superior Branch being continued down along the Radius, the other forming the Cubital and Medial Arteries; There is one thing however in general as to the stopping of the Arteries, I would have you observe, That

That if ~~happening~~ you see a great Efflux of Blood, you immedi: 87
ally apply the Tournequet above to stop it till one you get the
dressings ready, otherways the Patient may in the mean time
lose more Blood than he can spare —

The next species of Wounds mentioned in the Diagnosis, is,
the cutting of the outer Coats of an Artery, and by the internal yield-
ing to the pressure of the Blood, a true Aneurism ensuing, of
which the distinguishing Characteristics are already given, so
that you need to be in no hazard of mistaking it for an Abs-
cess, and treating it accordingly, which sometimes has been of
the most fatal consequences. Witness, Bonet. anatom. Pract.
Lib. 4. S. 2. Obs. 21. If the Tumour is small, by astringents &
Compression with a regular low diet and necessary evacuations
it may be cured, as you may see in Wiseman Lib. 1. Cap. 18.
and Lib. 5. Cap. 2. and Hildan. Cent. Obs. 14. Or if it is
in a very large Artery near the Trunk of the Body, you are
not attempt any other method of Cure. But if it is a large
one that won't yield to Compression and in a part where you
may easily come at it and lay it without hazard, you are
to proceed to what is commonly called the operation of the
aneurism, because if it be let alone, sometime or other it may
burst, and the Patient lose his life, as it had near done in
the third Obs. Cap. 16 of Wiseman, and Ruysch Obs. 2.
Now to perform this operation, we are to prepare the Patient's
Body by bleeding & purging to be in better case for undergoing
it, which time may be allowed if not requiring immediate opera-
tion. Then when the operation is to be performed, place the
Patient

88 Patient in a convenient posture and light, apply the Tournequet with a circular Compress round the member, and a thick bolster where this artery runs; for the Tournequet is always to be applied where the single Artery (that is afterwards divided into several branches to be distributed to the several parts) lies, over these two Compresses put a strong Band or Garter twice round the Arm slackly, and the stick with which that is to be twisted exactly opposite to the thick bolster, or else make use of Mr Petit's machine, which acting with the force of a screw does more gradually and firmly make the compression. Let the member be kept firm by the Assistant, then twisting the Tournequet or turning the screw, make sure of the blood from disturbing you; then cut open the Tumor with a Bistoury or Lancet, according to the length of the member. If this Incision is not large enough you may make it still longer by cutting up or down with a pair of Probe-pointed Scissors, with your finger take out all the clotted blood and threads that are to be found in the Tumor, relax the Tournequet a little, that you may see exactly whence the blood comes, and lifting up the artery with a hook, separate it as well as you can by dissecting from the Vein and nerve that accompany it, and pass a Needle threaded with two or three threads below it, bring it out at the other side. Mr Petit has contrived a new fashion of a Needle for this purpose, which is certainly more convenient. It differs from the common crooked Needle in this, that it has no sharp point or edges, so that it is not in hazard of hurting any of the parts; the eye of it is in the middle & at the other

other end, I mean where the Eye uses to be, it is crooked & broad 89.
that it may be kept firm. This is just under the Artery till the
threads appear on the other side, when they are taken hold of, the
Needle is drawn back again, and leaves the threads below the vessel;
then one end is tied above the upper aperture, and the other below
the under, while the third is kept as a Reserve in case any of the
other two slip, or is not far enough tied upon the Vessel. Some indeed
do not tie the Vessel at all, but apply Escharotic Medicines, just
as when an Artery is quite cut asunder; and truly after the aper-
ture and evacuation of the Blood clots and threads it differs
nothing from that Case, & therefore I refer you for the further Cure of
it to what has been said on that head. —

The last effects of a wounded Artery is the production of a bas-
tard Aneurism, when the Blood is pent up, and insinuates itself
thro' all the neighbouring parts, this requires immediate operation
because of the hazard the member is in of a Gangrene; this dif-
fers in nothing from the former manner of performing, only we
are to endeavour to squeeze out as much of the extravasated Blood
out of the surrounding parts as we can, and if a Gangrene is be-
gun, to make deep Scarifications in the parts about, to allow
a passage for the Blood and matter which are the occasion of the
Gangrene.

The Veins when wounded may produce the same Phenomena, but
in much less Degree, nor attended with such violent symptoms or
imminent danger & therefore what has been said of the Arteries may
suffice for them —

The Lymphatic Vessels were next considered, which Astringents, or
gentle Escharotics will soon stop, such as warm Ol. Turbith. or Alcohol,

90. or a solution of Allum, Sacchar. Saturn. Vitriol &c. drop into the wound. Some people immediately apply the actual cautery, but all these means are frequently ineffectual unless care be taken at the same time by Bandage to compress the Vessel from which the Lymph runs out, or if we can come at it, to stitch it; the Wound will be brought to the first simple Species.

The Nerves and Tendons if quite divided don't differ from the nature of a simple Wound, only that Inflammation & pain are to be prevented by proper med^s of which hereafter, unless it be proposed to stitch the Tendon to prevent the mobility of the part, as may be, and has been done with Success. Vide Vandy. Well. Cent 2. Obs. 45 as Mondionis in his 8th Observation assures us. after making an Incision towards the part near the Muscle whose Tendon is cut, to discover that end of it which is drawn back, with your fingers or a pair of Forceps the Extremities are brought together, & kept so with the simple Interrupted Suture, or the Quilled, which we shall afterwards describe, only the needles that are to be used are round that we may not cut any of the fibres. Vide Garangat. The Wound is treated with vulnerary Balsams & spiritous med^s and the Member kept perfectly firm, and that Muscle relaxed as much as possible, for fear of tearing the Stitches asunder. If the Nerve or Tendon is but in part cut (which we discover by the Symptoms described in the Diagnosis) there is a necessity of remedying it quickly, for if it be allowed to continue, such a train of Diseases may come on, as may not be soon remedied. If it be a Nerve or Tendon, the Use of which the Patient may want, without any great Inconvenience, in a place where one may cut without any danger of other Tendons, Nerves, Arteries &c. and if other Symptoms are

are coming on very fast, the speediest way of Cure is, to divide 91.
it entirely, by which it is reduced the Species immediately prece-
ding, or if it be noticed in time, and the cutting of it be not so
safe, we must have recourse to medicines. These recommend-
ed by Authors are mostly Spiritous subtle Med^s with a little
Oilness, applied warm; These stop the open vessels & strengthen
the rest, such as Ol. Terebinth. which is the most generally re-
commended, as you may see in May's Decad. 2. Obs. 1. Meck-
reen Cap. 28. Aquapend. Lib. 2. Cap. 11. & Wiseman Lib 5.
Cap. 3. tho' after the Inflammation is once come, he assures
us he has seen very bad effects from the application of this Oil.
Aquapend. recommends Ol. Sabin. The medicine which Wiseman
commonly used was Ol. Rosar. w^t. Sal Sp^t Vin. and Camph.
or a few grains of Euphorbium are likewise urged up. This last or
any other acid medicine should be cautiously used in this case.
because sometimes they are of the worst consequence, as you may
see in Haller. Institut. Chirurg. Lib. 3. Cap. 2.

Exposing it to the cold Air or application of cold Med^s must care-
fully be shunned for fear of Conulsion. No Simple Oil or Wa-
ter is to be applied to the Nerve or Tendon immediately, for by
them these parts are soon corrupted; but Authors generally order
the whole Member to be well embrocated with warm Oil, espec-
ially towards the Origin of the Nerve, and particular care must be
taken in the Management of the Nonnaturals. Upon this Subject
you may consult that Chapter of Hallerius just now cited, and
Mager Lib 2. Cap. 3.

If other accidents or Symptoms have already happened, we
must accommodate ourselves to them, which we will in a little
discourse to

92. Now we have gone thro' the Wounds of all the general parts of the Body, and therefore must proceed to the Accidents or Symptoms, that may attend these Wounds, and the method of Cure and First of catranaceous Bodies lodged in the Wounds, the extraction of which is generally by Surgeons reckoned the first Intention in the Cure of Wounds, and therefore so commonly before we have any notion of the Wounds themselves teach us this Art. But to me it appeared a plainer Method and better for understanding this Subject, to rank them among the Accidents (as they certainly are) that attend wounds, and therefore premise the general Cure of Wounds themselves.

Under catranaceous Bodies I comprehend every sort of Substance that will not unite with the Solids of our Body, & may hinder the reunion of the parts in which they are lodged, whether they be of Stone, metal, wood, Bone, Cloth, dead flesh, coagulated Blood &c. Poisons may very well be reckoned among catranaceous Bodies, but these I shall consider by themselves; confining my self at present to such Substances as may be catched hold of, and drawn out. The Antients had more much occasion to see this than we in Varieties, because of the different Instruments they made use of in their Wars whereas now on such occasions, there is nothing almost nothing used but cutting Instruments and Shot. The same general Rules however will serve for all. The Instruments mostly made use of for extracting these sorts of Bodies are Forceps, which may be formed of different bigness and figure, as you may see delineated in Scultet. Armament. Chirurg. Tab. 4. 9. 10. 11. 14. 15. 18. 20. where they are collected from authors, who have treated of this Subject. —

There

There are indeed some particular Instruments for particular Substances, &c. the Screw for fixing in Bullets, Wood &c when supported by the Bone on the other side, which are likewise delineated there. Supposing therefore that by Seeing, feeling, or with our Probe we are assured of an extraneous body being lodged in any part, the place of extracting these is where they entered, unless there might be danger this way of hurting some considerable Vessel, or that it has pierced near to and lodged in the opposite side, or that the body is of such a shape, as will not allow it to return the same way it went in; for instance, if it was a barbed Arrow, especially those with springs, now in any of these cases, we are to take it out at the opposite side to where it entered. In order to extract it the best way, we are to place the Patient as near to the posture in which he received it as possible, since it is plain, that thus the passage of it will be more direct than when the parts are any thing twisted by altering the position. Wiseman tells us a remarkable Instance Lib. 5. Cap. 1. from Desnor who had been at a great deal of pains to extract an arrow from a Gentleman, but all in vain, till he understood he was on horse back, when wounded, upon which he put him in a riding posture and immediately with ease pulled it out. If the Orifice is so small that we cannot get Instruments introduced, we are to enlarge it as already directed, if we may do it safely, let us, without hazard of cutting or destroying any Blood vessels, nerve or Tendon; then catching hold of the extraneous body we draw it out. In which Operation these precautions are to be used, viz. To have all the Instruments necessary in readiness, To catch fast hold of the

94. the extraneous body, To move it from side to side, in order to loose it before we begin to pull, and Lastly To extract it gently and slowly for fear of lacerating the neighbouring parts, applying one hand to the place whence the body is to be extracted, which may keep the member firmer, and by feeling the Curve of the Instrument the Operator will better know what turns may be necessary to be made. —

When any of the other Cases happen which oblige us to extract it on the other side, we are first to consider exactly, what parts we have to pierce before we can come at it; When we know that there are none that are dangerous, we cut upon the body itself, making our Aperture in proportion to the bulk of the extraneous body, rather however too large than too little, to shun putting the Patient to double pain, or frustrating the Operation, and confusing the parts, and proceed then as in the former manner of extracting. The most proper time for performing this Operation is immediately after the infliction of the wound before the Inflammation (which is always more or less in every wound) come on, which makes the parts much more sensible and swelled, so that there must be greater pain and trouble, besides that this extraneous body helps to increase all the bad Symptoms, as you may observe happened to a Nobleman's servant in Wiseman's Book 6. Chap. 2. and Bidlow Exercitat. Anat. Chirurg. Decad. 1. gives an account of a man in the English army at the Battle of Steinkirk, who lost his life by the wilfulness of his Surgeon, who would not at any rate extract a Bullet lodged between the 4th & 5th Ribs, & had not pierced the Pleura —

Notwith

Notwithstanding the disadvantage of such Substances lodged in 95.
Wounds, yet there are several Cases in which we are obliged to
leave them, if the continuance of this Body might keep the Patient
alive for some time, whereas as soon as it is drawn out he must dy.
In this Case we are not to touch it. This Cornelius Nepos in
Vita Epaminondæ Cap. 9. tells us ~~It~~ happened to that General
fighting against the Lacedæmonians; And we may make a
reasonable enough Supposition of its possibility. For Example,
If an Arrow had pierced part of the Aorta or Vena Cava, this
might so stop up the hole which it had made, that little or no
Blood could escape, and Nature might make a Shift to continue
the Circulation for some time, but if it was drawn out, immediate
death must follow from the loss of Blood. —

Petrus de Leuegelatu (Surgery. Lib. 3. Tract. 1. Cap. 12. confirms
this Supposition by the account he gives of a Countryman who
was wounded in the inferior part of the Neck by an Arrow, the
Shaft whereof broke so close, that he could not take hold of it till
Incision was made; the Patient had a slow fever upon him and
spoke well, whilst the Wound was enlarging; he bade the Opera-
tor do his work boldly and not be afraid, but before one Peter
Roster could be said after the extraction of the Arrow, the Patient
died, because, says Leuegelatu, the Arrow had been fixed in the
large Artery or Vein. —

Then again, if the Inflammation has already seized on the part,
the extraneous Body lies deep, and the Orifice near closed up, or
the patient weak, by the pain the extraction might make, we
would increase the Inflammation and Fever, and perhaps throw
the

96. the Patient into Convulsions; therefore it is neither then to be ventured upon. If the extraneous Body is large and deep among the muscles & Vessels and firmly fixed, so that it cannot be brought away without a great Laceration of the parts, we are not to attempt the extraction, but wait till it loosen by the Suppuration when we may do it with ease. And Lastly, tho' we are sure that there is some such Body remaining in the Patient, but cannot discover it, we are not to put the Patient to too much trouble by searching or cutting at random to find it, because we might do much more mischief than perhaps it might occasion, since we have a great many instances of such Substances being lodged in peoples Bodies without much prejudice to them, as Hippocrates de morb. Vriq. Cap. 5. I h. relates of one who was wounded in the Groin with an Arrow, the Head of it remained unextracted, yet the Wound healed, and the Patient laboured under no inconvenience from it, six years after the Head of the Arrow was discovered and cut out. Dechens Exercitat. Pract. p. 322 circa Purg. tells us of a Gentleman who was wounded in the right Hypochondrium. after thirty years the bullet was cut out of the knee. Or if it is lodged in a place that is not so favourable, Nature will exert herself to be rid of it either by raising a new Suppuration or Imposthume in the place where it is, and by that throwing it out, as you may have observed upon a Thorn or Splint of Timber running into your hands which you could not get out again. One very remarkable Instance of her wonderful Industry this way, tho' it is not directly relative to our purpose of external Wounds. I remember to have seen in the Hotel Dieu at Paris, in a Boy who had

had in a piece of bread swallowed a long big needle, about three 97
weeks after an Abscess was formed his navel on his right side,
out of which when opened I saw the needle taken, and the Boy re-
covered soon after. You have exactly such another Story in Ruysch
Obs. 55. and several in Deurman Chirurg. Curios. Lib. 2. Cap. 6.
Act. Hoffmanni Vol. 3. Obs. 72. This manner of seeing herself
Nature only takes, when she cannot have free Access to do it by the first
Orifice, else by this she throws it out, tho' frequently it is so fixed
as to occasion a long Suppuration, and very tedious Cure Whum-
ber Obs. med. 9. tells us of one that was extracted, but for some
Months did not cure, till by the Suppuration a piece of Cloth was
thrown out, then it soon closed up. Kistner Cent 2. Obs. 24. gives
us an Example of the Ramet of a Sword being lodged in the face
for several years before it was taken out, to the great pain of the
Patient. Wiseman Lib. 6. Cap. 2. relates the bad effects of too
much work in endeavouring the Extraction, and Nature's method
of seeing herself. — I remember to have seen in Chelsea Hospital
near London, a piece of rag evacuated from a wound that had
been several years a curing, and soon after the part was sound.
Some people pretend to lay aside this Operation altogether, and to
have Medicines (which they make great Secrets of) that when ap-
plied to a Wound rid it of all such Bodies. The like effects, he says,
Dittamnus Crete and Hares Grease has These they discover as
mighty secrets of some Physicians, tho' I believe that these Arcana
which some people have pretended to in this Case are either meer
trifles or suppurating med. What confirms me in this is, Forrest.
Obs. Chirurg. Lib. 2. Cap. 9. and Caesar maggot Lib 7. Cap 8.
where they discover a number of these wonder working Medicines, and

98. They all prove common enough Digestives and Detergents. Whenever then these extraneous Bodies are removed, the wound comes under the rank of these whose Cure we have already deliver'd which is needless to repeat —

The only thing now which remains of these which may be called foreign extraneous Bodies, and that all offensive to Nature, is Poisons, which I told you I should consider by themselves as requiring a particular treatment; Now to go thro' all the different kinds of these with their as various effects when received into the Mass of blood, and the particular specifics that several of them have, would be to engage in an affair that would take too much time and quite foreign to my present purpose, wherefore I shall only confine myself to the Surgeon's duty in this case.

First then, all delays here are of the worst consequence, wherefore as soon as you know, or have but reason to suspect that the wound is given by a Venemous Creature or poisoned Weapon, the most immediate way of preventing the poison getting into the Mass of blood (which is the whole Aim he should have) is, to cut out the wounded part immediately, or burn it pretty deep with a red hot iron, or strongest potential Caustic. — If this is not allowed you, the next method will be to apply Cupping & Lances to the Wound, by which any Liquor that is in the Wound will be forced out, and what remains of the poison with it, and scarifie pretty deep round, so that the Course of the poison (along with the Liquor) towards the Heart may be interrupted; fill up the wound kind cover the parts about with the strongest Digestives, and
Suppurating

suppurating Medicines, for these suppurate the broken Vessels, & 99
consequently bring away any of the poison that remains in the
Wound; if thus you get out all the poison, the Wound will heal
up, if treated the same way as those already mentioned; the
Physician in the mean time ordering such internal Medicines as
the nature of the poison requires. —

We come next to examine the other Accidents & Symptoms that
may attend Wounds, and consider the method of Cure. And
first of Contusions, which is the Solution or breaking of a great
many Vessels, consequently a complication of a great many small
Wounds, and Effusion of Liquids made by a Body that is not sharp.
If I was to discourse of this in particular and all the effects of
it thro' the different parts & Consequences that might follow from
it, I should launch out into a large field, but you know it
concerns us at present only as far as it relates to Wounds, in
which Case we are to look upon all the broken contused Vessels
as so many impediments to Reunion, wherefore we are to sepa-
rate them as soon as we can by Suppuration, which is done by
filling up the Wound by Digestives, of which elsewhere, and co-
ver the part over with such either in form of Plaisters, Cata-
plasmes &c. Of the first sort are *Creatum de Galbano*, *Diachy-*
lon cum Gummi. *Empl. de Melilot*. *de Ran cum J & io*.
The Ingredients of the Cataplasms are generally *Furina Semen*
Lin, *Axungree*. *Cap. recent. contus.* *Rad. Lilior. albor.*
Catiborum, *Axung.* *Porcin.* &c. If the Contusion is large & deep,
so that you think it may be in hazard of a Gangrene, scarify it
pretty deep, bath it well with Spiritous Med^s. and afterwards
apply

apply your Suppuratives, or if a Gangrene be very much threatened, instead of the Suppuratives try it with Antiseptics, or those that most powerfully resist Corruption, such as Scordium, Rue, Chamomil, Tanacet. mixed with Sp. Vin. Ol. Terebinth. Sp. Vin. Camphorat. Sal ammon. Theriac &c. But if you are afraid the great Suppuration that may ensue will endanger your Patient, prevent it by assisting the Transpiration & resolving the extravasated Liquids, which may be effected by emollient Fomentations made with with Malv. alth. Chamom. Parietar. &c. and resolving Cataplasms, such as the powders of these Herbs mixed with Galbanum dissolved, myrrh. Aloes. Honey. Ol. Terebinth. Sal ammon. &c. It would be a very idle task to run over all the formulas here prescribed, since no memory could retain them, but that you may at your leisure see them and chuse out of them, I'll refer you to the particular parts of the best Authors where you may find them, as Barbett. Chirurg. Lib. 2. Cap. 9. Wiseman Lib. 6. Cap 3. Colloquia Chirurg. Cap. 30. Boerhaav. M. M. T 334. In large Confusions the six Wonnaturals are cautiously to be used, of which we have already spoke. —

Wounds are very frequently attended with Hemorrhagies, or large Effusions of blood; but I think what has been said on Wounds of the Arterys and Veins may suffice for the Cure of this Symptom. — Inflammations very often supervene on Wounds, by causing a Gangrene Sphacelus &c. This belongs to the Chap of Tumours which you have in the next Treatise in this Book, and therefore I pass it over at present, as likewise its

its constant attendant, Fever, because it belongs to the internal diseases, which are not so properly the Object of Surgery. —

Every wound is accompanied with more or less pain, since there is always an infinite number of Nerves cut thro', and as many more so extended as to be in danger of being divided, which I take to be the Occasion of all pain. Now from several Causes that happen in wounds this pain may be so increased as to affect the whole Body and disturb the whole Oeconomy, and be of the very worst consequence, by the Restlessness and Tossing of the Patient, a Fever, Inflammation, and Gangrene may be brought on, and ought therefore to be speedily prevented. To effect which we ought to consider the different Causes that may occasion this pain; In wounds it may be owing to any extraneous Body in the Wound which distends or pinches the parts, the Removal of this Cause will take off the Effects, but the method of performing this has been already delivered. Sharp pungent Med^{ts} applied may produce the same effect, changing them for milder make a cure; the half cutting of a Nerve or Tendon may raise very violent pain, as we have already endeavoured to prove, & likewise gave directions how to manage. Inflammation and Swelling of the wounded part is another Cause, and therefore ~~in~~ in this case the Cure of this disease itself removes its Consequences —

Tight Bandage or a wrong position of the parts may produce pain, Changing of them always does it, and if we cannot so soon get the immediate Cause of pain removed, we are to endeavour to prevent its effects I mentioned, viz. Restlessness &c. by stupifying the Sensation of it, which is done by narcotics. Of these Opium is.

102. is the chief, as you were already told in the general management of the Nonnaturals. —

I cannot miss to observe that all the Writers on Surgery handle this Subject after a very odd fashion, for without ever considering the Cause of the disease, they give you a great number of Receipts for easing pain, and don't trouble themselves to tell you, in which case such and such Medicines are proper, which may occasion the greatest mistakes. E. G. In Wounds of the Nerves or Tendons Subtile Spiritous Medicines are ordered, in Inflammation, Lenients and Relaxants are used: Wounds attended with any of these Symptoms are painful, I think I need not tell you how far the Surgeon could err, who, to allay the pain, would apply the first sort of Medicines to the last sort of Wounds, &c. contra, it is so plain that you must see it —

The last supervening accident to Wounds that I shall mention, is Convulsion, which is an alternate involuntary contraction of one or more Muscles, occasioned by an undue distribution of the *Liquor nervosus* into these Organs, which in wounds may be occasioned by any of these Causes that raise pain, which if it depend on, may be remedied, as has been just now discussed to, or, it may have for its Cause a great loss of Blood, by which the Brain, Cerebellum, Medulla Spinalis, is not sufficiently supplied, and the Circulation not so regular in those parts; The Cure of this is evident, viz. by supplying this want with new recruits of good Liquors, as directed for ordering a right diet for wounded people, upon which its effect, Convulsion, must thus cease —

Your

You might perhaps expect that I should take into particular 103.
consideration Gunshot Wounds, as all that treat on this Sub-
ject do, but these are no more than Wounds attended with ex-
traneous Bodies, and Contusion, and therefore it would be
repeating the same thing over again to insist upon them —

Thus we have finished the history of general Wounds, i.e.
of these parts that are generally distributed thro' the Body,
some of which must be hurt in every wound that can be in-
flicted, and therefore we may proceed to those of particular
parts, where a particular method of management may be
necessary, still keeping in mind what has been said in ge-
neral, because to it we must have frequent References —

Wounds of the Head —

Here we don't take the Head in the general large Acceptation,
but only mean that part under which by the Calvarium, or
from the Eye brows to the lowest part of the Os Occipitis, not
including the rest of the face, the Wounds of which may easily
be reduced to some of those which have already come under our
consideration. 'Tis likewise to be observed, that here we don't
keep so strict to our first definition of a Wound; but likewise
rank in that order all Contusions, Lacerations, Fractures of
the Bones &c.

We shall begin with Wounds of the most external parts, which
are the Teguments and muscles, these we judge to be hurt only
first

104 First, from the figure and Shape of the Weapon that inflicted the Wound, &c. If it is a sharp cutting Instrument, and the Wound is very long, we have reason, because of the Spherical figure of the Head, to believe that more than the Segments is cut, but if the wound is but small, we may hope that 'tis not deeper; Whereas if it was made by a pointed Instrument the outer Aperture may be but small, tho' it pierce deep; but then we are likewise to examine with what force the Blow seemed to be given, if strongly and a resistance warding it, so much the deeper probably, et e contra. with the shape of the Weapon we are to compare the extent of the Wound, & then judge how far the Weapon must have penetrated; And then if there is none of these ill Symptoms that use to accompany deep wounds of the Head, we may still have the better hopes, but upon all this we frequently cannot rely: The surest way of being informed is, by seeing or feeling, with our finger, or searching with our Probe see Celsus Lib. 5. Cap. 4. It is a general Rule allowed by every body, and advanced by Hippocrates in the beginning of his Treatise de Veneribus Capitis, That we are never to be rash in making a Prognosis of Wounds of the head, because there are so great a number of Instances, where they have appeared very slight and attended with no ill Symptom, yet after several days have proved mortal. Hildan. Cent. 1. Obs. 21. tells us of a young Lady, who warmed herself with Dancing, and struck her head against a Post, from which there was a slight wound, she found no pain in it, and neglected it for two days, the third it began to pain a little, and a Surgeon Barber was called, who

who thought nothing of it; the fifth she complained of pain in
her head, the sixth she was delirious and died. Timaeus in his
Respon. Med. 5. delivers an account of one, who for nine days
found no trouble, but a little pain from an wound of his head
and went about his work, which was cutting and carrying of
timber; On the tenth day he turned convulsive and died on the 11th
Doleus. Encycloped. Chirurg. Lib 1. Cap. 3 mentions the case
of an Hanoverian, who was seized with a vomiting at the
mouth, after a Confusion of his head; his Vomiting was attend-
ed with a Delirium, at length he turned Convulsive & died
In Scalpart. Vand. Weil Obs. Cent. 2. Annot. in Obs. 1.
You'll find a great number of Observations from the best authors,
confirming this, which depends on the Muscles, Tendons, Vessels,
Nerves, Cranium and Brain being so near, which may be affect-
ed, tho' they don't at first discover themselves to be hurt. Now,
if the blow was given by a bruising Instrument, still so
much the worse, for there is still the greater hazard of these parts
just now mentioned being lesed, and of a Concussion of the Brain,
or if there is but a small external Orifice, and the wound of the
part below very large, still so much the worse, because the mat-
ter pent up there spreads into all the parts about, turns acid, de-
stroy's them, and thence may happen a train of the very worst symp-
toms, of which Vander Weil gives an instance from Rosinus in
his Obs. 2. Cent. 2.

Now, I would once for all desire you always, to their Prognostics
to take along with you what has been said concerning the Consti-
tution of the Patient, and Season of the year, in the general Prognosis
and

If it is a simple Wound of the Teguments, it requires no other method of cure than is already offered for such Wounds, only that you are still to be more cautious in the Regimen, & keeping the Air from it, and defending it from too moist, oily, relaxing Medicines, as these might cause a greater flow of humours to the part, and be ready to corrupt the Bone, if it is bared; if the muscles, Tendons, Veins Arteries &c be hurt, they are to be remedied as in our former discourse you have been told. Contusions have already been discussed, however that you may see the general directions applied to these particular Cases, Consult Wiseman Lib. 5. Cap. 9. Vand. Wiel Obs. 1. 2. 3. Cent. 2. May's Decad 5. Obs. 1. Berengar. de Fractur. Crani Cap. 14. 15. Dolet's Encycloped. Chirurg Lib. 1. Cap. 3 — But if there is a great external wound with a collection of Matter, and a small external Orifice, we are to enlarge this, by cutting with a Bistoury or Scissors, and give an Exit to the Matter, and make way for introducing our Medicines whose natures have been condescended on in the general Treatise of Wounds, by which the ill effects that otherwise follow may be prevented, as Scultet. Obs. 39 well cautions & adduces an Example to prove the necessity of it. —

The next part we come to is the Pericranium, whose wounds we may discover by the Touch, or if there is an Inflammation & Swelling happens after a Wound of the head, Goranget Cap. 39. assures we may distinguish whether it is owing to a Wound of the Periosteum or parts above it, only by this Mark viz. if the Ears are swelled with the other Teguments we may be
 severe

sure these parts only are affected; but if they are not tumi-
fied, then the Pericranium is lacerated, because, says he, the Teguments
are continued over the Bone likewise when the Pericranium is not
torn, if this membrane is only discovered or cut thro' and the Bone
bared, without a Contusion, Loss of Substance &c. even tho' the Te-
guments be separated a good way, or, as the French call it, En
Lambeaux, we are to stitch up the wound and cover the Bone.
See several Instances of the Success of this in Garangeot Cap. 3.
and Bereng. de fractur. Cran. Cap. 15.
But if this membrane is destroyed, and the Bone long bared, this
will be deprived of so much of its nourishment, the Air (which in
time of sleeping must necessarily have some Access to it, especially
if the precaution of making it warm at that time be not ob-
served) will contract and destroy the Vessels, and coagulate the
circulating Liquids of the Bones, next to the Air, by which that
part of it must mortify and turn from a bluish white Colour
to yellow, and if it remain long, gradually darker, till it be-
comes black. In the mean time it's continuity with the
parts below is broken, Nature thrusts it off, and it's sepa-
rated by the protrusion of the small sprouting Extremities
of the Vessels below, which is commonly called the Exfoliation
of the Bone; sometimes this is done so insensibly, that we
can't observe it, and the Bone is covered over after that it is
turned black, as in Ruysch. Obs. 9. you may see this an-
swering exactly to Experience, in the first Observation of
Vander Wiel Obs. 2. Cent. 2. after this Impediment is re-
moved, these small Extremities twist together, & form a
net

108. Net-work which covers over the bone, and new flesh is generated, Hence you may easily see that this Denudation of the Bone must make the Cure more tedious, and worse than in the former Case, wherefore to hasten it, and to prevent whatever other ill Accidents might happen from the Cranium being so long exposed to the Cold Air, Balloste in his *Chirurg. de Hospital. Cap. 12.* proposes to make several holes with a very small perforator, of the Trepan as far as the Diploe, from which the Vessels may easily be protruded, and from the several holes will soon meet so as to cover all the bone over before the Air will have such an Effect upon it, as to occasion any necessity for an Exfoliation. Before they did some thing (as they thought) to the same effect, by rasping of the parts, that were altered, but this could not miss to make a new Contusion of the Vessels of the bone, and consequently a new Suppuration; At the same time we are to prevent as far as we can any great flux of Matter on the part, and shun any thing that might help to corrupt the bone, as all fat and watery things do, and therefore apply Spiritous drying Medicines. The most recommended are strong Sinctuures of mastick, Myrrh & Aloes (See *Aquapend. Lib. 2. Cap. 17*) which preserve from putrefaction, and when the spirits fly off (as they soon do by the heat of the parts) these drying Gums are left by themselves, which cleanse and dry up the Matter, preserve the Air from entering, keep the parts warm, and very much further the generation of new flesh, especially if Nature be not disturbed with too frequent dressing, and that in the time of

of this the Air be kept warm by a Chauffer with fire or some such thing, and that it be speedily done, even when the Bone is foul and black. This method of perforation will help the Exfoliation, much better than either the Rasping, Burning or Corrosives of the Antients. The most part of Surgeons yet protract their Cures, by expecting the defoliation so long, even when they apply Sind. Euphorb. myrrh. and Aloes, to promote it.

The Skull itself when hurt comes next under our consideration; which may happen in several different ways and hence some Authors have made a great many Divisions and Distinctions, to which they have annexed as many harsh names; Hippocrates in his Book de Vulneribus Capitis makes only five Sorts *Γρυμα* Rima, a Fissure 2. *Φλασις* a Contusion, 3. *Εσφλασις* a Fracture - 4. *Ελγν'* Vestigium or Cut, 5. *Contra fissure* -

and afterwards all these were divided into their different Species, as in the first, when the Fissure was large and plain to the eye, they kept the name of *Γαγμα*, when so small as with great difficulty to be observed, then it obtains the Appellation of *Τξixισμος*.

2. *Φλασις* is either when the Cranium is soft and yields, remaining depressed, or when in an old person there is a Multiplication of a great many small Wounds which is the common notion of a Contusion.

3. The Fracture, of this they reckon three sorts, *Εκτιεςμα* when any of the Splinters press upon or prick the Dura Mater; *Ανυισμα*, when the fractured piece slips any way

under the sound bone, & Καταγασίς when it rides on top of it.

4. The fourth species Εἰσὴ is divided into Εκκοπή a perpendicular Cut, Διακοπή, a Standing Cut, that does not take the piece quite away, Αποκτελισμός, when a piece of the bone is entirely slopt off.

5. And lastly, the Contraspure is of several sorts, for such it is reckoned if the outer table be whole, and the inner broke, or if the Stroke is given in one bone, and fracture in the next, or if the Brain is hurt, and Vessels broke on the side opposite to the place struck; Or, if the Blow was made on the one side of the head, and the Skull crackt on the other, — A great many Authors have doubted whether there has ever been a Contraspure of any sort, and truly, Gentlemen, this a very difficult matter to account how this last sort especially should happen; For my part I ingenuously confess I cannot do it, and therefore will not trouble you with the great agitation the Animal Spirits are said to be put into at that time, and the violent Impetus they have against the Cranium, nor will I compare the Cranium and Encephalon to an empty bottle, which struck on one side will sometimes break in the other, nor debate with you the nature of the subtle Effluvia, that are said to be contained, but produce such Testimonies as I think put the matter past controversy, not relying either upon any thing upon the Authority of Hippocrates, Galen, Celsus, and almost all the Fathers of Medicine, who barely affirm such a thing, tho' this might have weight with it too, since these
Gentlemen

Gentlemen seldom affirm any thing but what they have had confirmed to them by repeated Experience, but recommend you to such Authors as even there have seen it. Fullop. de Vuln. Caput. Cap. 13. says, he saw a young Gentleman who was wounded in the back part of the Head, the external Table of the Skull was sound, the internal had a large fissure in it Cap. 11. he tells us, that Joannes Dierus asserts positively to have seen a fissure on the part of the head opposite to that where the blow was given. Nicolaus Florentinus affirms to have seen a Ropamaher, who had a great Collection of matter on the opposite side to the Wound. This Fullopius avers himself to have seen, where was likewise a great Contusion. Petrus Saaw in his Commentary upon Hippocr. de Cap. Vuln. assures us that he opened the head of a young man, who died three days after a Fall out of a Cart, and found the external Table sound, but a large piece of the internal separated, which had pierced thro' the Falx, and in that same place tells us of another who was struck on the left Os Bregmatis, near the Lamboid Suture, and the right was fractured Julp. Lib. 1. Cap. 2. gives an account of one, whose external Table was very little hurt with a bullet, but the internal was shattered. Scultet. Armament. Hist. Obs. 14. relates such another Case. Job a Meckreen Chap. 1. has a very remarkable instance of only a Contusion on the side where the Man was struck, and two fractures on the opposite. Parry. Cap. 8. Lib 10. has several such. Bonetus Anatom. Pract. Lib. 4. Sect. 4. has a very great Collection of such Cases, particularly Obs. 11. S. 2. One from Lepsius, of one who

112 who fell from a horse, and got a wound in the Forehead, after he died, the fissure was found in the Os Occipitis, and the extravasated blood and Matter likewise under this last bone. S. 7. 8. 9. Three such examples are recorded from Fontanus Dionis in his treatise of Operations on that of the Trepan, has two akin to this, and Gerardeot. Cap. 29. has severals of this nature; Hence, I believe you'll evidently see the truth of this matter, viz. that a Contrafissure may happen, tho' perhaps you may not be able to give such a rational account of it.

Now we come to the general ways of discovering all these different Lesions of the Cranium just now mentioned — When the Wound is not so large as entirely to discover the Cranium, or perhaps tho' you are assured the patient has got a Blow, fall, &c. yet cannot precisely discover the place where the hurt is, I say, the way to come to the knowledge of it is, by examining (as Hippocrates has very well directed us, de Capitis Vulnibus) the nature of the Instrument with which, and the manner that the Patient received the Stroke or fall; for according to the force of these we may make some sort of Judgment, then the largeness of the wound and figure of the place, for a large wound cannot be given in a spherical place without the Skull running a great Risque; We must likewise remember the different thickness, and consequently the strength, of some parts of the Skull by others, since the weakest are easiest affected.

Hippocrates likewise observes, that if the Hairs be cut by

impacted into the wound, the Cranium is commonly bared, and suffers the Probe which ought not to be too large, because it will not then discover small fractures or fissures; nor too small, lest we take the natural holes or sinuosities of the Cranium for diseases: thus, I say, by discovering the Iniquities will still more surely inform us. Hippocrates him, self the Father of Medicine, and after him all Authors order to give the Patient some hard thing to bite, or put a thread between his Teeth, and strike it, the cracking noise say they, or pain ensuing from this will discover whether and where the Skull is affected; but these cannot have effect except in those parts where the Temporal muscle is attached, as Boerhaave Chap. 1. very well observes, and there tells, some people and particularly Lanfrancius, pretended to make this discovery we are now about, as is commonly done in earthen pots, viz by striking the Skull with a small button, and observing if it had a low hoarse sound, which they reckoned a sign of fracture, fissure &c. If we can come at the Cranium to see it, the larger lesions of it are apparent, and we may judge of the lesion by the discolouring of the Bone. Our sense of feeling may help as much here, for when we are called to a Patient whose Skull we have reason to suspect affected, by the foregoing signs, but cannot exactly know where, we search all over his head with our fingers, and either the Inequality or swelling of the bone makes a discovery, or the Softness and Poppiness of the Teguments in that part gives us reason to suspect it; if none of these will

do

114. do, the Patient clapping his hand to the pained part may give us some light, or else we must have some patience and wait what Hippocrat. *Ecce Tranot.* 501 tell us will happen, that before the seventh day the flesh separates from the Bone, the bone turns discoloured, and the collection of Sanies creates pain, and when that is evacuated it is ill smelled, and the Wound does not yield to Medicines. Hence I think we may easily judge what the effects must be if it is allowed to continue any time, after this fashion, the bone must turn carious, and the Teguments be corrupted, ^{from which the greatest mischief may be expected, see} and the parts within the Skull also suffer, ^{see} Instances in Shenk. *Obs. med.* Cap. 34. 35. *Joh. pag.* 15 and therefore no very favourable Prognosis to be made; always however having a regard to the degree of the Accidents.

The Indication of Cure must certainly be, to discover the part and cleanse it; take away any thing that may hinder the Reunion, and then to heal it up. For the First, viz discovering the part, I shall just now shew you the manner of doing it, because it is in common to all the Lesions of the Skull, deferring the rest till we come to the particular Cases, as all of them have something singular. This discovering or baring the Cranium is made by cutting the Teguments, which may be done in several Forms —

The simplest is a straight Incision that is used when there is no need of baring much of the bone, or where the melady

Malady is under a Muscle, where fibres by any of the other 115.
ways would be cut cross: As for instance, if it was on the
under the Protophile Muscle —

The next Incision to this is in form of \vee or angular, and
is proper in the same Cases as the former, only there was a
necessity of making more of the bone bare than before.
The third is, in form of a T, and that is practised when the
Incision is to be made near to a suture, which, because of
the adherence of the Pericranium there and the Vessels that
pass, we don't care for crossing, and at the same time would
have a pretty large aperture, one leg of it is made along
the side of the suture, while the other is carried from the
middle of this away from the suture. —

The last of these Incisions is the Crucial, which makes
the largest Opening. Gerangeot in his 40th Chapter has
one particular Observation in performing this, which I
think not much amiss neither our. That after having
made the first Incision, and then cut the other to the mid-
dle of it, we do not continue to do this last at once, but
leaving the knife, begin at some distance on the opposite
side and make them meet, for, says he, if it is continued
on, there is no resistance made, but the Teguments stop,
and your Incision is not made even, nor is the Pericranium
all cut; In that same Chapter he also tells us, that some
people, particularly Armaund, use this sort of Incision
with Success, even upon the Temporal Muscle, tho' it is
contrary to the direction of all authors else. all these
Incisions are made with a straight or crooked Bistoury,
which

116 which you hold between your Thumb and midd & finger, supported by the rest, with the forefinger on the back of it, so that you may apply the more force to the Instrument, than otherwise you could. It is a general Rule to cut thro' the Teguments and Pericranium equally and at once, using the edge more than the point of the knife, especially if you have any suspicion of the Cranium being broke, or yielding, because if you plung'd down the point, you would readily depress the Skull more. —

After the Incision is made, separate all the Coverings of the Bones with your knife or any other Instrument you please, to use, and go on in the Cure, as shall be directed in the several Cases mentioned which now come to be noticed.

That they are to be look'd on as affecting the Cranium only, without regarding the Encephalon or Contents of the Skull, which will afterwards come under our Consideration by its self —

The first of the five Species of Lesions of the Cranium which we mentioned was the Fissure. If it is large, after the Incision 'tis soon discovered — The other sort viz. *Trixismus* or hair-like fissure requires indeed more pains to discover it besides the general method proposed *Celsus Lib. 8. Cap. 4.* and all that treat on this Subject, deserve you to pour some Ink on the bone, then wipe it off with a sponge or *Eradic*, the Ink will insinuate itself into the fissure, and shew the whole extent of it, as it cannot be cleared out there —

In order to know if the fissure tho' either large or small goes

goes thro' the Tables of the Skull, Berengiar de fractura 117.
Cranij proposes two methods, the first is, to ~~separate~~ make
the Patient hold his breath, or, as he expresses it, drive
the Air from the Breast to his head, if it does penetrate
the brain, when it is distended with the Obstruction of its
Veins made by this keeping in the breath, it will force
out at the Chin any Water that is lodged in the Dura
Mater, which will easily appear if the Skull was dry
before; The 2^d manner, he says, was practised by Gui-
do and Nicolaus, To mix powder of mastick and the
white of an Egg together to about the Consistence of ho-
ney, and spread it on Leather and apply it on the bone;
then letting it lay a day, if the fissure penetrates, they al-
ledge the mastick must be drier on the part opposite to
the fissure than any where else —

Since these fissures are so very hard to discover, and such
a narrow passage for the matter, they sometimes produce
much worse effects than large Fractures, especially if
not diligently cured. For an instance among many, I
shall give one from Isaac on Hippocrat. de Vuln. Capitis,
of one, who ten months after a fissure (which was not
observed was taken with a Vertigo or Swimmering in his
head and died soon after. The Bone was found carious,
and the brain affected. Wherefore the method of Cure will
be to give Vent to the matter, and cleanse it. The Anti-
cients had recourse (according to Hippocrat. & Celsus their Rule)
to Rasping, which they continued as far as the fissure went,
& the most part of the moderns have followed them; only
Baltaste

118. Balloste proposes to make small holes with the perforator as far as the Diploe, on each side of the fissure, by which any extravasated matter may have liberty to be evacuated, and the new flesh to sprout, which he backs with several examples, of the success of this method. The rest of the Cure differs nothing from what has been said of curing the Cranium, when spotted by being exposed to the Air, when the Pericranium is separated, viz by applying Spiritous and cleansing and drying Medicines to the Bone with Digestives &c to the Teguments —

The second sort mentioned is the Contusion, The first manner of this happening is, when the Skull is so soft that it gives way, and is pressed inward without fissure or fracture. Some people have taken upon them to deny the possibility of this, particularly Garangeot Cap. 39. but several Authors, allowed to be of very good authority, confirm it by examples. Vander Weil Cent. 1. Obs. 6. brings several from Liscrus, Riverius, Muchellus, Scultet Armament. Chirurg. Bereng. Cap. 10. affirms that he has seen this happen both in young and old people, and gives us three examples. Job W Meckreen Cap 1. gives us instances of this, one of a Woman whose head he examined after her death; the other, of a boy, adding, that he has remarked it in several Children. Hilsan. Cent 3. Obs. 21 tells us of a hopeful smart Boy, of ten years of age, who was rendered perfectly stupid by such a depression of the Skull. Percy Lib. 10. Cap. 5 mentions this sort as if he had seen it. —

It is easily distinguished when once the Segments are cut, and by the depression may be judged before and the hollow which you feel without any crackling noise, as is commonly observed in Fractures. Now the effects must be, the depression of the Brain which we shall consider afterwards; and the Bone runs a risque of corrupting in that part by the stoppage that its vessels suffer, neither will it grow out as it should do, besides the deformity that it leaves. Wherefore we are to endeavour to remedy it as soon as we can, for which there are several methods proposed by Authors, particularly Auldanus. Cent 2. Obs. 5. advises to raise it by the Patients holding in his breath, so that if it is but slightly depressed, the Brain pressing against it may without more ado raise it, or else apply Cupping Glasses or rather Horns, which, you know, by exhausting the Air with a Pump, or Sucker, which is much the better way, and now much more in practice, or by raising it when kindled Flax is used, I say, either of these ways, the pressure is taken off that particular part, and that by the Expansion of the Air and parts within, it will be raised —

The third Method he proposes is to spread a piece of strong Leather with every strong striking Plaster, such as one made with Syx named Colophon Gum Elemi, or rather such as this. ℞. Farin. Triti. ʒi. Ichthyocoll. (in aqua Beton. et Salu. solut.) ʒi. Pul. Mastich. Ebur. Farin. vol. Sang. Dragon. Gyps. a ʒss M. et decoque in aqua Beton. et Salu. ad justam Consistentiam.

120 then spread it on the Leather which is just as big as is
requisite, and apply it with a String fasten'd to its
middle; he advises it to be applied to the Teguments, sup-
-posing a Wound not to be made; but I am afraid this
might do more mischief than good, for these Teguments
are not so firmly fixed to the Bone as to be capable of
lifting it along with them, while he would be sure to make
a separation of them from the Pericranium, and break a great
many Vessels, from which an Effusion of their Liquors and
a collection of Matter, and their Consequences, of which are
ready. Whereas I had rather, as Prew seems to design,
apply this Plaister to the bare Bone, and after it is dried
and firm, by pulling up, the Bone will be raised —

The last manner of raising the depressed Cranium is, by
fixing in a Screw in its middle, and pulling it up by that.
When once it is brought to its former State, we are to fill up
the wound as soon as we can, by the method already propos-
ed in the bare Skull; Scultet. Armament. Chirurg. Tab. 32.
advises Surgeons to take none of these violent methods, un-
-less some urgent symptoms appear, but only after shav-
ing the hair off, to apply a piece of warm Lambs Skin
or a Diapalma Plaister on the part, affected with conveni-
-ent Bandage, by which simple method he assures us he had
used several —

The Second Sort of Contusion is what should properly be so
called, viz a Multiplication of several Wounds in the Bone,
and this all allow may and frequently does happen; It is
not so easily distinguished before the Bone be laid bare, only

by the difficulty of an Effluse of Sanies; Sometimes upon the neglect of this the bone may turn carious, the matter erode both outwardly and inwardly, whence the worst of Consequences; Such seems to be that Case proposed by Shunk. Br. de Cap. 34. F. p. 15 of a Gentleman, who after a Wound in the Head with a bullet was soon cured up, he laboured under a perpetual Headach for several years, having undergone several Medicinal Courses in vain, till at length the Cratrina was opened again by a Surgeon, the bone was found black and carious for a good way: after the separation and throwing off of which, the Patient recovered perfectly. This Contusion differs nothing in its Cure from that of the Spoiling of the bone, by exposing it to the Air, therefore to that I refer you, and pass to the third Species of the Affections of the Cranium, viz. the Fracture.

This differs from a Fissure, which is only a simple Solution of Continuity in one bone; whereas by this there is a piece or more of the Skull separated wholly, or in part from the rest by a blunt Instrument; This is discovered easier than the foregoing, by the general Rules for finding out the Lesions of the Cranium and is of the worst sort to cure; All of these require Incision or Aperture. I told you it was divided into 3 kinds, First, where there are several Splinters broke off, which prick or press upon the Dura Mater; These must be removed as soon as possible because of the mischief that the hunting of this membrane may create; of which more fully when once we have done with considering these Maladies as simple Lesions of

222 of the bone, and in this view we are to remove them with our Forceps, since there is no hopes of their reuniting, and that they hinder the evacuation of the Matter, create pain, and retard the Cure, or if they are not entirely separated, we are to raise them or cut them off.

The Second Sort of Fracture is, when the broken piece slips either wholly or in part under the Sound Bone. This is the worst case that does happen, because in a very short time it may destroy the Patient, and with the greatest difficulty we can come at it to remove it. But this belongs to that part of our discourse which treats of these Wounds of the head that disturb the Encephalon —

The Third Fracture is the Vaulting, or when the fractured piece rides on the Sound; this is not quite so bad as the last, unless the under part of it sink down upon the Dura Mater and Brain. If it is quite broke off, it is to be taken away, if it is still contiguous it is to be reduced, or if that can't be done, the piece that hinders the reduction is to be clipped off with a pair of clipping Forceps or Scissors, or sawed off with a small Saw, which may be of different figures, according to the place and occasion. See Hildan. (ent. 2 Obs. 4. Parey Lib. 10. pag. 56. Scultet. Amament. Chirurgy. Tab. 6. 20. In all these cases we may observe that the Supposition is of both Tables of the Cranium being broke, and therefore the Dura Mater bare. Medicines first to be applied must be such as are proper for that membrane, then such as the Bones require, and lastly for the Teguments, but this we shall let alone till we come to the Operation of the Trepan to avoid Repetitions.

The fourth Malady of the Cranium is Cuts: The first of these is the perpendicular Cut, which differs nothing from the Fissure, only that it is easier discovered, and not attended with such Contusions of the Teguments and Bone. — The Second is the Oblique, which is in this worse than the former, that the Matter may lodge under the stopping bone; and it is better on the other hand, because not in so much danger of hurting the Dura mater, and Brain. If it be a small piece near slopt off, which you cannot expect will reunite, or that spels the Teguments, or hinders the Application of Medicines, or the Evacuation of Matter, you may cut it off, otherwise let it stay, and it will reunite. — The third Species of Cuts of the Cranium is, when the piece is quite taken away; if Teguments and all is gone there is no help, you must fill it up according to Art; but if the Teguments still remain with the Piece of Bone adhering to them, this must be separated from the Teguments, and immediately clapt over the rest of the bone, and there kept by Bandage and Suture. Vind. Wiel Obs. 5. Cent. 1. has several examples of such Cases, after this manner, when even both Tables of the Cranium were separated, without waiting any Resolution or Separation of the Bone Borengar. Cap. 15 gives an Account of a Gentleman who was wounded in the Fore-head, so that the Teguments and bone fixed to them hung over his eye, this Author's Father separated the bone, and stitched the Teguments after laying them over the bare Skull and in a short time cured him. And Fellos. de Capitis Vulneribus

124. *Vulneribus* Cap. 22. relates two Stories akin to this. And *De Surge lala* Lib. 3. Tract. 1. Cap. 1. assures us he had done it often with Success: For it would be quite in vain to join the two bones after they were once separated, it would prolong the Cure very much, if ever it did at all. It is a very ridiculous Story that *Tob. a Meckren* in his first Observation tells us, viz. that a piece of a Dog's Skull was cleft into a Man's head, whose name was *Bytter Lyon* in *Russia*: A Tartar had cut off a large piece of his Skull, which the Dog supplied, and the Wound cured up, which as soon as the Russian Divines got notice of, they excommunicated him till once that piece was cast out again, he adds, that this is to be reckoned among other Fables, so that the Author himself believed nothing of it.

Now all these different affections of the Skull require much the same Method of Cure, viz. Shunning watery, oily, or cold Medicines, to the Skull and applying Digestives, or Incarnatives to the Lips of the Wound without too frequent dressing. —

The last method in which the Cranium suffers is, by the *Contrafissure*, which, if you remember what has already been said on that head, differs from a Fissure or Fracture in nothing but the difficulty of discovering it, which we can only do by the Symptoms of the Brain's being affected, which may supervene, and any Alteration, as Contusion & Inflammation that happen to the Teguments under which the Contrafissure lurks, whence we may easily see of what ill Consequence it very often is, and the Cure of it when discovered

discovered, or of these Causes where the Brain is affected, which 125
we come next consider; for you cannot but observe, that all along
hitherto we only made the Supposition that the Cranium was hurt,
without the Brain suffering by it, tho' for the most part it
happens otherwise because the Brain is so near, and is of so
fine and tender a texture; whence in the general Prognosis
of Wounds of the head we advised you never to be too rash in
making too favourable a Prognostic, since from very slight
Causes frequently the most fatal Consequences have follow'd
which I endeavour'd to evince by several Examples from Au-
thors of the best & most undoubted Credit. —

The different ways that the Contents of the Skull suffer
in wounds of the head is 1st by pieces of the Skull pressing
upon, wounding, or pricking the Dura Mater, Brain, or
both. 2^d By wounds of these parts by cutting Instruments.
3^d By matter falling down upon these. 4th By rupture
of the Vessels within the Skull.

Now any of these according to their different degrees may pro-
duce these following Effects or Symptoms, a great Swelling
and Inflammation of the Face, external Teguments, and par-
ticularly the Eyes, by the stoppage of the returning blood of
these parts from the Compression on the Sinuses of the Dura
Mater, into which their Veins empty themselves, whilst the
Arteries are constantly throwing in more blood, Heaviness &
Drowsiness, when by the Compression of the Brain the Nerves are
so much obstructed as not to leave a free passage for the Li-
quidum Nervosum, Swimming of the Head or Vertigo by the
same

126 same Obstruction, and irregular Distribution of the Spirits, as Ringing in the Ears from the 7th pair of Nerves suffering, Blindness, the Optic Nerves being hurt; Delirium from a total irregular distribution of the Liquidum Nervosum in the Brain, vomiting of Bile, a greater quantity of Spirits being sent into the Stomach, makes it convulsive, and throws up its contents; which continuing, the Liver and Gall Bladder are hard prest on, and forced to send out greater quantities of Bile into the Intestinum Duodenum, whence it is forced up into the Stomach, and from thence thrown out by the Mouth; Pains of the Head from the Tension of the parts by the pressure or Obstruction; Convulsions, or alternate irregular distribution of the Spirits to the muscles. Palsys from a total Suppression of Spirits; the Urine and Faeces alone come away without the Patient's knowledge, by which time the inferior parts of the Medulla Spinalis come to suffer Apoplexies, nothing but the Vital Nerves being free; Fevers, as the Heart may be acted upon the same way as the Stomach; and all may result in Death, the entire stoppage of all Circulation.

Whence we see how fatal they may prove, unless timely assisted; First, then, from these Causes where the pressure of the Brain occasions these Symptoms or some of them; this must be owing to Fracture or Depression by Contusion, amongst the vast number of Authors that might be adduced for proving the mischief of Fractures only, See Tulpius Lib. 1. Obs. 1. & 4. & Wiseman Lib. 5. Cap. 9. Acta Pueritorum Lipsij 1712. and for the continued Depression the same Authors were cited to convince the existence of it viz. Job a Meckreen Cap. 1. Vander Wiel.

Wiel Cent 1. Os. 6. and Hulsan Cent 3. Obs. 21. sufficiently demonstrate that they may produce —

Our Intention of Cure in both must be to take away the pressing or pricking Cause, if it is a small piece of the fractured Skull which is entirely separated that is the Cause, we are to take it away with our Forceps; but if it is not quite broke off, but deeply depressed, or perhaps if it has slept under the sound bone; either of which ways it is so firmly fixed, that you cannot get it raised without some part of the first bone being taken away, you must apply the Trepan, to make room for coming at it to lift it up, and cure it as shall be directed when we come to that operation, which will be when we have enumerated all the Cases that may oblige us to perform it. — The Cure of the depression without fracture has been already delivered wr by a sticking plaister, holding in the Breadth, or Screwing.

The second manner of the Incephalon being lesed, is, by cutting Instruments. These are the least hazardous, being open to our view, and leaving no extraneous body behind; unless by chance it light on some large Vessel, and even then the easy access to it and free passage of the Matter has made it more easie than if the same happened with Fracture or Fissure. 'Tis true, that if the Cut or Puncture be so small that the blood or matter is stoppt up we are obliged to trepan & the Cure is the same, as shall be prescribed for that operation. —

In Fracture Fissure, or Cut we are to prevent the falling down of the Matter on the Dura mater; or if it gets there, to evacuate it upoon as we can, for by stagnating there, it becomes acrid,

128. erodes that membrane and very soon after the Brain itself, & the same is to be said of the blood lodged any way within the Skull. These Effects you may see in Shenk. Obs. de Caput. p. 71. and Tulpius Lib. 1. Obs. 2. Samueerde Appendix Obs. 3.

This Effusion of blood may be occasioned either by a cutting Instrument dissecting them, or a violent Conception of the head, without any of these; effects from all the three will be much the same with respect to the Corruption of the blood and its Consequences; but this last is so difficult to discover, that too frequently it has proved fatal, as in Hippocrates de Morb. Vulgar. Lib. 5. S. 50. we may see happening to a pretty young Girl, who sporting with a Comrade was hit on the Sinciput with her open hand, immediately she turned blind, and was without breath, as soon as she was brought home; a violent Fever seized her accompanied with pain in her head, Redness of the Face; the 7th day near a Cupful of stinking reddish water came out at her right ear, and she seemed somewhat relieved and better; but the fever again increasing she turned Lethargic, and could not speak, the right side of her face was contracted, she became convulsed, had a difficulty of breath, and Convulsion with Trembling, her tongue and sight failed her, and on the 9th day she died. Hel. dan. Cent. 2. Obs. 4. relates a Case akin to this. Caleriol. Obs. Lib. 3. Obs. 1. tells you of a boy of 13 years of age, who was struck with a willow on the head, there was neither fissure, fracture, nor Contusion from it. The 6th day he was inflamed and attacked with convulsive fits, and a Palsy in the right Leg and left arm, and a Fever and Delirium, he died the 11th day. And in his 8th Obs. of the same book he relates the Case

Case of a Wintner who was hit with a stone on the head, he died the 4th day and there was Sanies found in his Skull.

Bohn Vuln. S. 2. Cap. has three such stories. Bonet. Anat. pract in his 4th Book. S. 4. has a vast number from Authors. If I may be allowed to give in Observations, I shall tell you of one Reid a Printer in this Town, who was struck with a stone on the back part of the head, the Wound in the Teguments was but small, he refused to be bled immediately upon the blow, but walked near a mile into Town; that night he was bled, and next day, with proper medicines given and applied, yet spite of all he died in a few days, with the usual symptoms of Lethargy, Deprivation of Senses &c. When his Skull was opened there was neither fissure nor Fracture, but only a small extravasation of blood, and a considerable Distension of the Vessels.

The way of knowing whether there is any blood extravasated, or violent Concussion, is, by seeing the symptoms which come after, or happen upon any case that can produce them, which symptoms we gather from these Observations to be, Vomiting of Bile, which is already accounted for, the Diminution or Loss of our Senses, Seeing, Hearing &c according the greater or lesser Compression of the Brain, a Vertigo or Giddiness, Sleepiness and Dazing, Palsy, Convulsion, Delirium, Lethargy, Apoplexy, Trembling and Shivering, a Bleeding at the Nose, mouth, or Ears, because by the Compression the Brain, its Vessels are so much obstructed that little blood will go by the Internal Carotid, consequently more is sent by the external,

130 so that its Vessels are very much distended, and those that before by their open mouth sent out a thin Liquid for lubricating these Cavities are now so much distended as to allow a passage for blood itself, which will be sent in larger quantities because of the greater Impetus given it. The last Symptom is the redness and swelling of the face and eyes; after knowing by these Symptoms that there is blood extravasated in the Brain compressed, we are to find out the particular place where that blood is lodged, or Compression; if it is owing to a Fracture, fissure, or Contusion, 'tis not so easily discovered.

Borengar. mentions two plaisters from Bertaphalier, one is, Thur. Cer. Sabin. & Zing. M. The other is made by adding to this $\frac{1}{2}$ the same quantities of Terebinth. acet. for Sabin. — The head is first shaved, then these plaisters applied for a day; wherever the Fracture is, say they, the plaister will be dryer than any where else. But Fallopius de Vulneribus Capitis, Cap. 3. says, he has tried them, and that they were meer trifles. However, it seems not improbable, that by the heat of some such Plaister, there might be a greater flux of Liquids to the Teguments above such a place, consequently they swell and turn red, and still more, if there was any possibility of the matter passing thro' the Skull by any fissure, or small hole. The Patient likewise will (tho' perhaps otherwise quite stupid) readily put his hand to the part that suffers, as I myself have seen several do. nor could they be kept from it. And Lastly, as Hippocr. de Vultu Capitis has it, If the right side of the head be affected, the left

left side of the body will be convulsed, and e contra, & commonly on that side on which the matter was lodged becomes paralytic. The reason seems to be that where the blood is, the Nerves are too much compressed so as to be rendered useless, while a greater quantity of spirits is sent by the other side, tho' irregularly. See an Instance of this in Hippocr. de Morb. Vulgar. Lib. 5. S. 28, and in Boerhaav Anat. Pract. Lib. 4. S. 2. Obs. 2. S. 4. there is a plain proof of this from Smetius, of one who was struck paralytic on the right side, where the matter was found extravasated after death, and not before the wound. And ibid. Obs. 8. S. 8. confirms it —

I suppose it almost needless to tell you, that the Prognosis cannot be very favourable, since in all these Cases the Brain is in so much hazard. The two means of Cure are Meds. and Surgery. The first of these should be of such a nature as to prevent any greater Efflux of blood, and to assist the removing of what has already been extravasated. These are either General Medicines or Topical Applications; The first of these are Bleeding, Purgings, Attenuants and Dissolvents, Bleeding by diminishing the quantity of our Liquids lessens their Impetus and makes the Vessels less distended; whence it plainly follows, that there is not so much hazard of more blood being poured out, that the broken Vessels will have a better opportunity of reuniting, that the Obstruction is fairer to be removed, and the extravasated matter more easily get into the open mouths of the Veins which are ready to take it up. This

132 This therefore is to be done as much and as often as the Patients strength will permit. You'll find a particular account of the good effects of this Evacuation in Wiseman's Surgery Book. 5. Cap. 9. Obs. 10. of a Gentleman who was beat of his Horse in Tottenham, and in several other Observations in that Book. Purgings is generally recommended by all Authors, particularly by Hippocrates de Ulceribus — These however should not be too sharp and violent so as to increase the Circulation much, or raise the Inflammation, but only with a gentle Stimulus to evacuate, as they help to dissolve our Liquids, therefore prevent Obstructions and have the same effects as Bleeding in diminishing the Secantity; at the same time in case any matter, Pus, or Serum is taken up into the mass of Blood, by purgatives it will be sent out of the Body, and so prevented from falling upon any other of the Viscera, as the Lungs, Liver &c. as otherways it too too frequently does, whence the Patient may be killed tho' his head be cured. See this sufficiently evinced in Bonet. Anat. Pract. Lib. 4. S. 3. Obs. 16. For a Meckreen Cap. 23. from the Authority of several great men, and ways of accounting for it.

The proper Purgatives are Scammony, Gallap with proper Correctors, with Senna, Rhubarb, Aloes &c. whose Doses are to be accommodated to the Patients Case, Age, and Strength — The Diluent and Dissolvent Med^s are commonly known by the name of Vulnerary Med^s and Cephalic Decoctions. The Ingredients of these are very numerous; I shall mention some of

of them, and refer you to Authors for the rest. Agrimonia, 133.
Artemisia, Betonica, Caryophylla, Aulea, Salvia, Hyperic,
Flor. Lavendula. Thibae, Rad. Tormentill. Foenicul.
Petroselin. Ling. Santal. Album & Citrum. Sassafras, Cas-
sia — The Decoctions of these you may add Honey or
Syr. Diacod. Papav. Erratic. Pector. Bals. for sweetning,
Vide Hippocrat. de Vulneribus Mayd De Ingrepuad
Infimos. Lib. 2. Cap. 31. Caman. Obs. 86. h. 1. Borengar
de Fractura ~~Sanij~~ Cap. 13. Barbette Lib 2 Cap. 8. Michael
Dori Lib. 2. Cap. 21. Wiseman Book 5. Cap. 1. g. Boerh.
M. M. S. 198. 281. which soever of them you chuse —

Let the Patient drink them warm, and in small quantities
at once, but very frequently. — The Rest of the Naturals
mentioned for the Indications for wounds in general are
very strictly to be observed in all wounds of the Head,
but especially in the cases now supposed — Now the To-
pical Medicines that are applied to assist this matter are
of the same Cephalick Class, and may be either in form of,
Fomentations, Cataplasms, or Plaisters, which I recom-
mended in Contusions; We design them to resolve and prevent
too great a Suppuration; they may likewise be used here
to advantage. Some particular forms you may see recom-
mended by Celsus Lib. 5. Cap. 19. S. 7. 8. & 11. Borengar.
Cap. 14. and 15. has a good number. Michael Dori Lib 2.
Cap. 19. & 20. These sorts of Medicines are likewise to be
applied to the nose and ears, especially if nature begins any
Evacuation that way, as sometimes she does to the entire
Cure

134 Cure of the Patient. Vand. Wiel. Cent 2. Obs. 15. tells us of a woman who upon a stroke with a stick on the Parietal Bone, had these ill Symptoms that generally demonstrate the Brain to be affected, She was a little relieved by blood-
ing, and evacuated by her ears a great quantity of a wor-
sery serous humour daily, and by this was perfectly cured.
This Case he saw himself, and relates another from Langelot
much akin to this. Hudson. Cent. 3. Obs. 22. confirms
it.

If this Method don't succeed, but the Symptoms still re-
main or increase, we are immediately to come to manual
Operation, which, if neglected for any time, might prove of
the very worst consequences, as Hudson. Cent 2. Obs. 6. tells
us happened to a Gentleman who was entrusted to some Bar-
ber that would not go into the performing of the Trepan,
and the Patient died in a few days. And Saultet. Obs. 9.
tells us of one who lost his life by the want of the Trepan.
The advantage of it is that we make way for the included
matter, and can come at the depressed Bones to raise them,
'Tis true, that if there is a large piece of the Bone cut off, or
the fractured pieces can be easily taken out, these perforations
already made may serve as well, and therefore there will be
no necessity of performing this Operation of the Trepan, but
we are not to trust to the evacuation of this matter thro' the
pores of the Skull, tho' it begins to do so, and sometimes has
been attended with Success, because the grosser parts will not get
thro'; and it takes such a long time in being discharged wholly
that

that the Brain in the mean time may be spoiled & corrupt,
See an Example Scamenweede Appendia Obs. 11.
Ound. Wiel. Cent. 1. Obs. 7. gives an Example of a woman
being cured so, yet condemns the practice

The best place for opening for the Trepan is just above
where the matter is lodged. or Skull hurt, because there we may
expect the most immediate relief; yet there are several Cauti-
ons to the Rule, where is must not be observed. Hippocr.
de Caput. Vuln. orders us not to perform it on the Sutures:
the reason is, that the Dura Mater adheres firmly to them,
and therefore would be lacerate in taking away the piece
There are vessels that run thro' them that would be destroyed,
the large Sinuses run under several of them and they might
be opened. We are to shun as much as we can the doing of
this Operation, where there are any considerable Muscles, because
by cutting them, the Action or motion of the part may be lesed,
and perhaps Convulsions may be raised by their Laceration.
Hence Hippocr. de Caput. Vuln. discharges the temporal
muscles to be cut, adding, that if they are cut on one side, the
other will be convulsed, that is, the Silver Saw will be drawn
that way. However there is sometimes a necessity for cutting them,
and it has been done with success, as Garangot Cap. 39.

Bohn Regime. Vuln. S. 2. Cap. 1. You know that in the
Os Frontis immediately above the Orbit of the Eye, the Laminae
of that Bone separate, and leave two large Cavities, called Si-
nuses, besides that you could not get the head of the Trepan but
with great difficulty thro' both Tables there, there would
remain

136. remain a constant Stillitium because of the muscles separated in that part. Celsus Lib. 9. Cap 4. therefore these Cavities are likewise to be shunned. There are holes in several bones of the Cranium, thro' which pretty large Arteries and Veins pass, these when wounded are drawn back within the Bone, and very difficult to stop, as in Bolsalova, therefore we are to avoid them. Neither are you to apply your Trepan in the inferior part of the Skull towards its Basis, because of the unequal thickness of the Bone, wherefore before one part was half thro' the Dura Mater would be lacerated with the teeth of your Instrument in another. If the bone immediately above where the brain is affected be not firm enough to support and bear against the force necessary for the Perforation, you must forbear applying it there, else there is a risque of the Bone, Instrument, and all together being plunged into the Brain. In case of any of these exceptions, the next remedy is to apply it as near to the part affected as possible, nay some times when this cannot be right determined after performing the operation the place that seemed most probable and you don't find that this succeeds and the patient is in great danger, you may make a perforation also on the other side: for you know that if it be the cause of the Fall an Aperture on one Side won't serve, when the matter to be evacuated is on the other. Vermd. Wiel. Cent 1. Obs 3. gives an example of one that had the Trepan 27 ^{times} applied to evacuate blood and was cured, and another that was 7 times trepan'd. And Mr. Boerhaave assures us he saw one that had the Operation

Operation performed first on one side without Success, then immediately by opening the other, was relieved —

Now when the place is determined and the head shaved, you make an Incision of the Teguments as already directed, the Crucial Incision, if it can be conveniently done is best, because it makes most room for the application of the head of the Trepan, and that there might be the less impediment in the work, several Authors order the Angles to be cut off, then either dress it up dry till next day, or if the Cure seems very urgent, stop the bleeding with hot Alcohol or Ol. Terebinth. or dry rags, and do the Operation then, for which the Patient must be placed in a right position, so that the place where the Perforation is to be made may be directly under the Surgeon's hand, that the Trepan may be perpendicular to it, and at such a height as will be most convenient and easy for the Surgeon, and in this posture he must be firmly kept by Servants, all the while his Ears must be stopt with Cotton or Wool, that he may not hear the Sawing of the bone. The Air is to be made warm with Cheuffers or Lights, and the Bone dried with Caddie or Sponge. Then after observing what he is to cut out in the middle of the piece, with the perforative he makes a hole for fixing the Pyramid in, which is on the head of the Trepan: This Pyramid keeps it firm, till once by turning it round softly, there is a sufficient Crenula or mark made by the teeth of the modiolus, then he lifts it up, and with the Key takes out the Pyramid, because if that staid on it would hurt the Dura

138. Dura mater, before the head of the Trepan cut the bone thro, and if he has a mind, to use the screw for lifting out the piece after it is sawn thro: Now as long as it is firm, he screws it into the hole in the middle. When this is done, he again puts on the Trepan (tho the English Surgeons for a while made use of the but is not near so convenient) holding it commonly open in his right hand, then clapping the palm of his left and on the top of the manubrium or handle, and leaning his forehead ovr the back of his hand, by which it will be firmer, the Surgeon sees exactly what is done and what he does, he removes the right hand and with it gripping the midle part of the Instrument turns it round by which the teeth saw the bone, thus he does slowly for we are by no means to hurry in this operation, lifting it from time to time & applying it after the same manner that he applied it at first, giving a little turn backwards to prevent its sticking or its uneasiness to come away: The reason of lifting it so often is to know exactly how deep he has gone, to clear the teeth of Trepan with a little brush; We ought always to be ready and to take out the Sawings with a pointleß Picktooth or some such Instrument Surman. Chirargy Curios. Lib 1. Cap. 6. proposes that an Assistant or Servant should (during the Operation) constantly blow away with a Pipe the Sawings, which hinders the turning of the Trepan, and retards the cutting of the Bone; this way of doing he continues till he comes to the Diploe, which he discovers from the flood

Blood that comes out from its bloodvessels, by the less resistance he finds because of its softness, and consequently the change of the Solino. Beware however of trusting too much to your Diploe, for I have seen several skulls where it was quite obliterated. If the blood from the Diploe hinders your work, stop it, by pouring in a little Alcohol Vine, and proceed as before, only more warily, more frequently taking out the head of the Trepan, and examining if the bone change on the bottom of the cut part, from a white to a bluish colour, if it is equally cut, not more of one side than another, wherever it is least cut or thickest, there apply a little more force, trying with the Levatory or screw if it begins to loosen, bring it away with the Levator, spatula or screw, which last is the best; this you gently spa into the hole it was introduced into before, move it from side to side, till the piece is quite loose, then raise it straight up. You may easily conceive that by thus breaking the thin bone, several rough sharp pieces will stick out, from the sides of the hole, which would be liable to prick the Dura Mater, and therefore are to be cut off with the Lenticular knife, so called from a Button in form of a Lens at the extremity of it. Some chuse to deprep the Dura Mater a little first, and separate it from its edges with the Mammophilace or spatula, but the bottom of the Lenticular knife will do it well enough. Hold this knife firm with your fingers, if the bone is firm round, supporting your Thumb upon it, if there is a fracture reaching

140. reaching as far as the Aperture; — Mr Petit, as we learn from Garangot Cap. 45, desires to support our Thumb of the Right hand that holds the Instrument with the Thumb of your left, thus cut off all the Inequality of the Bone — I might have observed, that all the Instruments you now make use of should be a little warmed, because of any mischief that Cold does to the Dura Mater and Brain. The best way, in my opinion is, to dip them in some warm spirits or any other proper Liquor, as soon as the hole is smoothed, if the Skull at the Sine is depressed, introduce the Levator below it, and raise it up, taking care not to lean your Levator on the other side of the hole, to make it serve as a prop or Fulcrum; because if thus you apply much Strength, you'll make a fracture where there was none, but holding the Instrument with all the fingers of your right hand under it, and Thumb above, let your fingers serve as the Fulcrum. —

If there are any Splinters along with the Fracture, let them be taken away, when there is a large piece depressed, especially if it slips under the Sound Bone, one perforation is not sufficient, but we are obliged to make several with the Trepan before we can come at it; if there is Blood, Sanies, or Pus, between the Brain and Dura Mater, you may cause the Patient hold in his breath frequently, or sneeze, and at the same time with a Spatula gently depress the Dura Mater at the Aperture, that when the Brain swells, the matter Blood &c being pressed may run out where least resistance is viz at the hole, wiping it off with a small bit of sponge which

which had been before dip't in warm claret and the wine expressed. In case the blood or matter be lodged below the Dura mater (which you know by the protuberance and change of colour of that membrane, you may with a Lancel wrapt up in Caddue, in form of a Tent, cut thro' this membrane. This new Caution of concealing the Lancel is advised, because if the Patient chance to die, the ignorant Bystanders are ready to impute his death to this Incision. Now this practice bears all the reasons imaginable along with it, and is supported by the greatest Authority. After the membrane is opened, the same means are to be used as in the former case —

It is surprising to see how soon the good effects of this Operation are sometimes observed in the Patient. I remember to have seen a Soldier in Morrison's regiment at Stirling, who was trepan'd for a depression of the Skull and extravasation of blood after a Fall he was quite stupid the whole time of the Operation, but in half an hour after recovered his senses, and his face which before was prodigiously swelled sensibly became less. —

After the Evacuations the Dressings are to be applied All agree in putting a Sineon first, which is a round bit of Linnen with a thread ~~and spread round~~ thro' its middle, or Caddue tied with a thread and spread round This ought to be somewhat larger than the Aperture that it may slip a little under the edges of the bone, and prevent any roughness there from affecting the Dura mater. The ~~medicines~~ great question here

142 here is, what Medicines the Sinder should be cured with
(Celsus. Lib. 3 Cap. 4. orders sharp Vinegar, but that destroys
the Bones and irritates that membrane. Avicen. com-
mends Ol. Rosar. Galen is for Pigeon's Blood, The
French Surgeons cry up Bals. album Torovante, but
without troubling you with a great Collection of prescrip-
tions from Authors, I shall follow Wriseman's advice
who is by all acknowledged to be a sound Practitioner
and is in my opinion the most rational on this head. If
there is any appearance of bleeding, he allows Vinegar
or Sp. Vini. and Mel. Rosar. and Tinit Myrrh. et Aloes
are proper, new onel Aegyptiac. may be used, but when
there is neither of these causes, he recommends gentle di-
gestives and Liniments. What he mostly uses himself
(which Fallopius & Aquapend. very much recommend too) is
Ol. Rosar. with Resin. Albiet. as with this medicine it
begins to digest and diminish the Ol. Rosar. and increase
the quantity of the Resin. Aquapend. Lib. 2. Cap. 8. de-
scribes the same well to be observed; in hot weather if you
want it a little more detergent, put in the little more Mel
Rosar. instead of the Ol. —

The common way of applying any of the Medicines you chuse
is, to dip the Sinder into them warmed then put in to the
Aperture. But I think what Garangeot Cap. 40. advises
from Mr Orhand is rather as convenient. To apply the
Sinder dry, and with the end of a small Spatula slip its
Edges under the Sides of the Bone, then to drop on the
warm

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warm medicine upon it, because, where the Sindon is wet,
it does not apply near so well; upon this they generally
put around pledget, then above that another, till the
hole is filled up. But Bellote in his Chirurg. de Hospit.
Cap. 13. desires us to have a piece of Lead prepared exact-
ly to the Dimensions of the head of the Trepan which
was used. This has several holes made thro' it and has
two handles opposite to one another, the round piece he
introduces till it be equal with the Surface of the bone
then bends the two handles over upon the external Surface,
by which the plate is hindered from further slipping in,
or pressing upon the Dura mater, while that membrane
is hindered to be protruded outwards as frequently it does, &
the Matter easily gets thro' the holes of the head & is im-
bibed by the Eponge or Sponge that he fills up the rest of
the wound with. Mr Petit, according to Garangeot Cap. 40,
thinks this plate of Lead not sufficient to keep down Fun-
gous Excrescences &c. because tho' it has the bending of the
handles to keep it from slipping in, it has nothing but
the pressing of the other Dressings to keep it from being
pressed out: he therefore endeavours to ^{im}prove that Con-
trivance thus; He has just such another piece of Lead, but
without handles, and instead of them a thread thro' its mid-
dle which he introduces above the Sindon, then puts down
a narrow bit of Lead longer than the Diameter of the Ap-
erture, with a thread round its middle, this being longer
must be thrust down, and consequently must fix a little
upon

144. upon the Joints of the Bone, which prevents the round piece
giving way outwardly. All I have to say to this Improve-
ment is, that in my opinion our Pet it has not sufficiently
guarded against the round piece of Lead constantly press-
ing upon the Dura Mater, and being ready to slip under
the Skull, which would frustrate the whole design —
After the hole of the Skull is filled up, dress the bare bone
with Spiritous Medicines (which you may remember we
mentioned, when treating of the Skull being bared) & fill
up the wound with Digestives, of which already: Over
these Compresses dept in Digestives, & q. in warm Claret,
and squeezed out. Some advise to embrocate the whole
head with Ol. Rosar. or some such Medicine, applying
another pretty large Compress above the former, and over
all the Bandage which is the great Cap, or that made with
Flandherchief, but the first is best; if it be very cold weather
a night Cap might be put above it; then lay the Patient
with the Aperture on the most depending part, if it can be
done conveniently, for the discharge of the Matter, but be-
cause (according to the common way of dressing with the
plate of Lead) this might cause the dressings press too
hard upon the Dura Mater, some people make a stuff
Ring which they put round above the Compresses, and so save
the Compression, however, after Bellous's way this is needless.
The Dressings are renewed more frequently or seldom according
to the discharge of the Matter, and never but when that obliges
us to it, observing every time to do it as quickly as we can,
and

and that every Thing about it be warm, renewing from
 time to time the efforts for evacuating the contained mat-
 ter, in case it comes not all away at first or second dress-
 -ing; when once the matter is all evacuated, and the Sup-
 -puration goes right on, the little vessels will begin to
 push off the corrupted parts above from the Dura Mater
 and Cranium and sprout out themselves, then increasing
 and twisting with one another fill up the Aperture and
 cover the bare Skull, this turns gradually harder after-
 -wards becomes cartilaginous and thro' process of time
 quite bony. —

The external Wound is cured by Symplocos as in the
 general Cure of Wounds; but sometimes in spite of all the
 Surgeon's Care, Excrescences, which some Surgeons call
 Frons S.th Fraicij, will grow up, and that frequently to a
 great bulk, See Tulp. Lib. 4. Cap. 1. Skin. Obs. fol.
 p. 24. de Cap. Obs. 68. Hudson. Cent. 1. Obs. 14. 15.
 they are nothing but the too lax Vessels of the Dura Mater
 or Brain protruded. They are cured by Revulsion of the
 Humours another way, as by Purging, Glysters &c. Or, when
 you observe the first appearance of them, Spiritous Medicines
 will do much to stop them, but if they are grown to any
 bulk, Astringent and Drying Medicines, such as Pulv. Sabin.
 Hermodactyl. myrrh. mastick &c. If these don't prevail, gentle
 Escarotics, such as Alumen ustum may be used; but Beware
 of violent Medicines, for these may produce very ill effects,
 as you may see happened in Hudson. Cent. 1. Obs. 14.
 Or, if it grow very large, it may be cut off with a Ligature
 or

146 or Scissars; After this is removed, the Cure is the same as has been already described.

We have reason to expect Success from the Operation if it is not in a dangerous place, if the Symptoms abate and go off, if the wound digest right, if the Patient is of a good habit of Body, and has all the Conveniences furnished him, but on the contrary, if it is in an ill part, where by the thickness of the Skull there is probably a great Lesion of the brain, or near the Cerebellum, or where the matter cannot easily be evacuated, or where there is large blood vessels, immediately below them; then, I say, we may be afraid the Operation will not relieve the Patient. However, a doubtful remedy is rather to be attempted than let the Patient perish inevitably. Or, if he is of an ill habit of Body, as Consumptive, Hydropic, Poxed, Rickety, we may have less hopes after the Operation —

These following Signs are bad Omens, the Continuation of the Symptoms of a Lessed Brain, or supervening of new ones, the dryness and livid Colour of the external wound, the discolouring of the Skull, sinking Sanies coming out at the Aperture from the Brain. If these come altogether, we may pronounce his Doom. In both these Prognostics we are also to take along with us the Observations delivered for wounds in general, of Age, Sex, Season of the Year &c.

Wounds.

Wounds of the Face

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The Face has nothing particular in it, unless perhaps you may reckon that when the Salivary Duct is cut or opened by a Wound. It differs from Wounds of the Lymphatic Vessels because they are both attended with the same Symptoms of the Effusion of a thin watery humour, and are both ready to make the wound Callosus, only in this the Salivary Ducts are worse to cure than the Lymphatics, because there are no other Vessels with which they can communicate to carry their Liquor another way, which the Lymphatics have, and therefore are more easily and without danger stoppt. The only way of doing to shun the deformity of a constant Stillness in wounds of the Salivary Duct and not to bereave the person of such a quantity of that useful and necessary Liquor, Spit, is, to perforate the Cheek entirely, if it is not so already, to make the wound all Callosus, as it naturally inclines to be, then to scurify the Callosity, or take it off with Escarotus on the other side leaving the Internal still callosus, and to incarnate and cure the External Orifice, as is already directed in the general cure of Wounds by Symparctosis.

Wounds of the Neck

The Neck deserves no particular Consideration neither, since its Wounds come under some of the general Classes, unless when the Tracheal Arteria is opened, but not quite divided, or that tho' it is quite cut thro', yet its extremities may be brought together, in either of which Cases the Sight of the wound and

148. The Air coming out at it; the Patient's want of Voice and Speech. soon discover what part is cut. All that is to be done is, to bring the divided parts together, to keep them so by the common Interrupted Suture, and to cure it like a simple Wound, which is soon and easily performed.

Wounds of the Thorax.

Wounds of the Thorax may be divided into three parts,

1st Of the Teguments or the containing parts.

2^d. Where they penetrate into the cavity of the Thorax, without lesion of the contained parts.

3^d. When these parts suffer - Of these in order.

We know that Wounds are of the first sort when none of these signs of penetrating wounds appear, or methods we use for discovering succeed (of which immediately) neither have we much to fear from them, if they are duly treated; tho' they are somewhat worse than Wounds of other parts, because of the continual necessary motion of the Thorax in Respiration, which may somewhat retard the Union. —

Perhaps it will not be improper to repeat the Caution against stitching here, because the threads will soon tear the flesh & make the wound worse than it was, in case the Weapon penetrated deep and obliquely without penetrating the cavity however. We are by no means to stop the Egress of the matter by cramping the Orifice with Tents and Dressings &c. or compressing it: But on the contrary we ought to promote the evacuation of it by avoiding these Impediments, else matter may gather, and eroding the Plebs may dischar-

itself into the Cavity of the Thorax, whence that disease we 149
call an Empyema. Such seems to have been as related
by Shenk. Obs. Tol. p. 275. 289. From Hallerius. The ge-
neral Rules will suffice for the Cure

The methods we use for discovering whether they penetrate
into the Cavity are, by considering the manner the Instrument
was directed, if straight and if it seems to go far in, then
comparing the largeness of the external wound with the
Weapon, if it is larger than such an Instrument could
have made without having gone far in, These are Conjectures
of its penetrating. But for sure signs, place the
Patient in the same posture he was in when he received
the Wound, otherwise the Muscles shifting their Situation
would make the trial in vain, and introducing a Silver, steel,
or Whalebone probe, or a small wax candle the same way
you understand the Weapon was thrust, and you will
distinguish when you get into the Cavity by the want of
such resistance as you would find if it did not penetrate
If the Air rush out at the wound (which you'll soon know
by holding a lighted candle at the Orifice and observing
the motion of its flame or extinction) this is an infallible
sign of its reaching into the Cavity, or else of the Lungs
being wounded if they are adherent to the Pleura; In
this case frequently one may hear the grumbling noise of
the Air within the Thorax, and then if this Air be kept
at the Skin either by change of the Situation of the
Body or the smallness of the Orifice and contraction of the
parts

150 parts, it insinuates itself into the Tunica Cellulosa and swells it up, as Butchers do their Meat. This may spread very far as we see in Ambrose Parey Lib 10. Cap. 30 happened to a Pastry Cook who was wounded in the Trachea Arteria. Vander Wiel Cent 1. Obs. 30. has several Examples, where from Wounds penetrating into the Cavity of the Thorax, the whole body was thus blown up. This sort of Tumour is called an Emphysema, and is a sure Sign of a penetrating wound. —

The last trial is, by injecting some warm Liqueur, or simple Water, or with a little honey dissolved in it. If the Wound has pierced into the Cavity, the water will not return, et e contra; It is always to be feared in these Wounds that some of the internal parts suffer, wherefore at first the Prognosis is doubtful, but if no Symptom appear of such being wounded, nor of Blood being evacuated, we are to cure it up, as soon as we can, like a simple wound, First however, taking care to get out all the Air that has entered, or introduced itself into the Cavity, for if any remain, by its rarefaction and pressure it will much incommode the Lungs in their Action, whence great Oppression in Breathing which often imposes on Surgeons, and makes them believe there is Blood to discharge, whence they keep open the Orifice with Tents, as murr. Deid. 5. Obs. 2. tells us he did, and kept his Patient six weeks under his hands, when he might have been cured in a many days. The best way of getting out this Air is, to
cause

cause the Patient draw in as much Air as he can, while the Surgeon keeps the wound close with his finger, after a full Inspiration the Surgeon lets go the Wound and the Patient makes a Misus or Effort of Expiration, while he keeps still the Air, as people do at the expulsion of hardened Faces alvined, by this Misus the Air is pressed out at the Orifice, and immediately the Surgeon secures the entering of it again in the Expiration by holding the Wound close with his fingers. This may be repeated so often till no more Air remains. Then Dress it up, and cure it like a common wound, by Symplicosis removing the dressings as seldom as possible. Mr. Boerhaave thus in a few days cured an English Gentleman who upon such a wound was thought, by the Surgeons who first saw him, to be in a very dangerous condition, because of the difficulty of breathing he laboured under. But in a penetrating wound, tho' the Viscera be not wounded, yet if an Artery is cut, which has poured any quantity of Blood into the Thorax, the Case must alter for the worse —

The Signs of Blood being lodged there are, that the Patient is easiest when he sits straight up, because the Lungs are least oppressed, being on his back the most easy posture, for the same reason tho' with difficulty that he can lie on the wounded side, but cannot turn him to the whole Side, because then the extravasated Blood lies upon the Lungs, Heart, and Mediastinum, and if there is blood
in

152 in both breasts, he can lie on neither, but on his Back. When he sits up he finds a great weight on the Diaphragm, and is sensible of a fluctuating motion of the Liqueur. We are to evacuate this blood as soon as possible, else if there is a considerable quantity of it, by the pressure upon the Lungs it hinders Respiration, or it will soon corrupt and erode all the Viscera contained in the Thorax, whence a Train of a great many diseases, if not Death itself. Nor are we to trust to medicines for the Cure alone, as Mafey in Epistle 2. Some proposes, nor to Nature's taking it up some other way, as sometimes she does; In Rad. Wiel. Cent. 1. Obs. 34 there are a great many Instances of Pus being evacuated from the Thorax by Stool, and Obs. 38 as many of its going by Urine. An Uncle of mine was wounded in the Breast at a Duel, there plainly appeared by all the Symptoms to be blood collected in the Cavity, the whole he evacuated by Urine in the form of Pus. And Samwerde Obs. 39. tells us of one who evacuated the blood unaltered by Urine. This however is not to be trusted to, because the Viscera may be eroded ere this does happen, and when that matter is got into the mass of blood it may lodge in the Lungs, Liver, &c. therefore if the wound is toward the lower part of the Thorax, we place the Patient so that it may be most depending, then make him inspire as much as he can, and keep it in a little, at the same time pressing softly back the Lungs, with some flat Instrument, in case they fill up the

Orifice

153.
Crifice, if the blood or matter is thin, it will soon by
this means come running out, if the Crifice is too small
we cut and enlarge it; if the matter is thick or blood w.
regulated, we first inject some resolvent and diluent med.
such as Barley water, Urine, or Decoction of mallows,
Tusilago with some honey and a little Salt or Soap,
and if you are sure that the Lungs are not affected, Albes
may do service, but if they are hurt, it raises a cough,
and all these Bitters are very ungrateful to the Patients
taste, when he throws them up. When the blood is thus
made thin, it will much easier come away. But in case
that holding of the breath will not force it out, we endea-
vor to do it by Suction, which some propose to have done
by one's mouth, or else introduce a very flexible pipe
of a Syringe, either of Lead or some other very pliable
metal, which is to be smooth and broad at the point with
holes on its sides, when once this is introduced among
the Liquor in the Thorax, by drawing up the sucker of
the Syringe, you may suck a good deal of it up—
When the Wound is made in the superior part of the Thorax,
and the blood has fallen down upon the Diaphragm, there
is no possibility of its ever being evacuated by the Wound,
wherefore we are obliged to make another Aperture at the
lower part of the Thorax, and allow the Wound to close up
as soon as we can. The place for making the Aperture
(if we can't count the Ribs) is between the third and fourth
bastard Rib, reckoning from below upwards, and about
five

154 five Inches from the Spine of the back. The reason for choosing this place is, that lower we might be in hazard of hurting the Diaphragm or piercing into the Abdomen, and if higher, the matter would not evacuate. Nearer the Spine we would cut the Dorsal muscles, and wound the Intercostal artery, which does not for some space come into the furrow of the Ribs; if further from the Spine, the Patient would be obliged to lie on his face before the blood could get out. If the Patient is so fat, or the parts so tumified that we cannot count the Ribs, we put his arm in the most natural posture, which is, with his hand on his breast, and measure four Inches below the inferior angle of the Scapula, which with five Inches from the Spine will be much in the same place. There (after the Patient is placed in a convenient posture, which is, inclining to one side and forwards) the Surgeon with his left hand punching up the Teguments, and a Servant doing the like at a little distance transversely. Mr Arnand, according to Garangeot (Cap 20), advises us to take up the Latissimus Dorsi likewise, if we can, then with a Bistoury cut about three or four Inches lengthways, of the Latissimus Dorsi is not at first cut, do it now, crossing its fibres, then divide the Intercostal muscles by cutting them (with your Bistoury having your forefinger all along the Back of it, and its point guarded with that finger) in the middle between the Ribs, and making your Incision parallel to the Ribs, to
shun

thru both the Arterys and Bone, then very cautiously 155
perforate the Pleura; carefully avoiding touching the Lungs with
the Edge of your Instrument; As soon as the least hole is made
in the Pleura, the Lungs will contract, and therefore you
may make the rest of your Incision with the less hazard;
After the opening is sufficiently large you turn the Pa-
tient so that this new Aperture may be in the most
depending part, and follow the same directions as in the
former Case, for the Evacuation of the Blood and Matter.
You will see in several Authors this perforation to be
done with a Caustic, but that practice is almost quite
out of doors, for it hazards the Baring of the Ribs or
opening the Artery, it is not near so quickly done, and
makes the Cure more tedious. —

After evacuating as much Blood and Matter as you
think convenient; for sometimes when there is a large
Collection, if too much is taken away at once, by the parts
being too suddenly liberate from the pressure they labour:
ed under before, the Patient will faint and you may
endanger his life, which however is seldom the Case, when
this operation is performed upon Blood being only ex-
travasated by a Wound: Now, I say, after a sufficient
Evacuation of the contained Liquor, we are to dress it up;
The common Directions for this are, to put in a Silver
or Lead Canula flatten'd, so as the Ribs may not press
upon it, crooked and smoothed at the Extremity, not to
hurt the Lungs; with holes on its Side for the Matter
to

156 to get into it, and broad at the external part to prevent its going in, with holes for strings to fasten it if you think fit; or else to make a flattened Tent with point cut off and made soft, to which a string is fastened to prevent its getting into the Cavity, or to draw it out again if it has slipped in. Julp. Lib. 2. Cap. 13 tells of one who had a Tent sucked into his breast and had it there for six months, at last threw it up by his mouth & recovered. Hildan. Cent. 1. Obs. 16. relates such another case. Mr. Petit, as Mr. Garangeot affirms, chooses rather to lay both these aside, and only puts in a piece of Linnen with a long tail at it, upon this a Dossil tied with a thread, then fills up the rest of the Wound with Dossils and Pledgets, alleging that the matter comes away, nor is there any hazard of the Wound filling up, and the Lungs are sure not to be hurt, and to me this proposal seems to have a good deal of reason in it; especially if to Mr. Petit's you add Samsweerde Obs. 14 where he tells us of one who never mis'd to be thrown into Convulsions, whenever they attempt to introduce Tents or any such solid bodies between his Ribs after a wound of the Thorax. Above the Pledgets you apply a sticking plaster, no great matter which, over that a large Compress, and the Scrot and Scapular. If you think the Plaster may hinder the Evacuation, either snip it in several places to let out the matter, or put on a Compress instead of it, keep the Orifice thus open till once the matter is wholly evacuated and

and no longer, else it may become fistulous, then cure
it as an ordinary wound. Observe tho' that if the Patient
is wounded on both sides, you are never to discover both
the Wounds at once, else you hazard the Suffocation of
your Patient; as also here (as well as in all other
wounds that penetrate into any of the Cavities) the Air
is always in time of dressing to be kept warm with a
Chaffer of Fire, nay there seems to be large as much reason
for this precaution here as any where else, because,
besides the Advantage of preventing the mischief that
might happen from the cold Air, there is this further
Advantage, that by rarifying the Air at the Orifice,
any of it that gets into the Cavity of the Thorax will not
be so liable to occasion that Oppression of Breathing,
which commonly attends the Admission of that elastic
Fluid, especially if at the same time the other Air of the
Chamber is kept cool, which being received into the Air
Vessels of the Lungs will be in a condition to distend their
Vessels, notwithstanding of the rarified Air that may rush in
at the Aperture between the Ribs. The Physicians all the
while not neglecting to prescribe a right Regimen for the
Patient, nor omitting repeated Bloodings, unless he has
otherwise lost a great deal of Blood, and then prescribing
such Medicines as may prevent putrefaction or any
Obstructions &c. of which more fully when we come to these
Wounds that hurt the contained Viscera of the Thorax. —

The Supposition we have all along made here, you see, is

158. is, that there is a quantity of blood effused, but that the vessels whence it came are closed up, if they are not, then by mild Astringent Injections of the Excoctions of Flor. Ros. rubr. Baloushor. Plantag. &c. and anointing what we introduce into the wound or Aperture with these same sort of Medicines, as Bol. Armen. with the white of an Egg &c. we are to endeavour to stop it, and then it returns to the former Case supposed: And truly this is all we can do by Topical Applications for any Wounds in this place where vessels are opened, even in the Viscera themselves —

We come now to the last Species of Wounds of the Thorax, viz where the Viscera are hurt, and the most of these in the Prognosis we pronounced deadly, i.e. we don't know any Rules of Art whereby they can be cured; tho Nature does sometimes work Miracles, and therefore tho' we foresee and foretell the imminent danger, yet we are not to leave the Patient entirely, but endeavour what assistance we can to Nature in what she does —

First then, for Wounds of the Lungs, which are most exposed to be hurt by penetrating Wounds, as being nearest the containing parts, and as filling up the greatest part of the Thorax: We know that they are wounded by the general Signs of penetrating Wounds, and the frothy blood that comes out at the Wound with the coughing up of the blood ascertains it to us. —

The Prognosis is already delivered, viz If these wounds are large we cannot expect Success, but if they are small they

They may be cured, but at best there is a great deal of ha. 159
zard. All we can do for the Cure, besides the general direction
for Wounds, is, by repeated bleedings to empty the Vessels,
that so the Circulation may be more languid, & therefore
less blood poured out, and the Vessels more contracted, con-
sequently likelier to reunite, assisting their Coalition, and
stopping the Flux of Blood by gentle astringent Injections,
such as we have already mentioned, avoiding every thing
that has a very nauseous taste, because some of it will be
thrown up by Coughing: and likewise avoiding these Meds
that stimulate because they will provoke coughing and
hinder the Reunion of the divided parts. The internal Meds
such as are of a Balsamic mild nature, as to cause no
great Stimulus, and to preserve the Lungs from Putrefaction
which may have the worst Consequences; Such are those that
are commonly called Pectorals; among the most common
are Adiantum, Agrimon. Heder. terrest. Hyssop, Scabiosa,
Scordium Tussilago. Rad. Chin. Bardan. Liquorr. Sar-
saparilli. Sign. Santal. album Citrin. Ficus, Dates &
Raisins. These in Decoctions. Galban. Oliban. Balsam
Tolud. Peruv. Mel. Sperma Ceti Myrrh Mastich. These
in other Forms. Consult any of the Dispensatories and you'll
see long Catalogues under this designation in pectoral
Medicines, particularly in Michael Part. 1. Lib 3.
Boerhaave's M. M. S. 850. 851. 853. 858. 859 &c.
I need not produce testimonies of Cures being thus performed.
all the Observators have numbers of them.

If the Pericardium is wounded, which we judge by the
manner

160 manner and length the weapon was thrust in, and the watery Liqueur that runs out of the Wound. The Heart, Aorta, and Vena Cava produce the same Phenomena when wounded, which, according to Celsus Lib. 5. Cap. 26. S. 8, are a great impetuous flux of blood, a weak pulse, very pale colour, Cold Sweats and these frequently ill smelted when such person, and at length the Extremities turning cold — All that we can do in these Cases is to support the Patient a little, not however by stimulating medicines, And by making Compressions on the returning Veins of the Arms and Legs, to allow as much blood to go by these parts as is absolutely necessary for keeping in the life. I never heard of any being saved, yet still it is well done to preserve the Patient as long as we can. —

The Gula and Oesophagus run down the Thorax, if it is quite divided, there is no curing of it, but we may nourish the Patient with Glysters. If it is only opened, it may easily enough reunite, if it is not hindered by the food given by the Mouth; these wounds we know by the Aliment mixed with any other matter that comes out of the Wound. —

The Ductus Thoracicus is discovered to be open by the thin greyish Liqueur that discharges itself. The Patient not being recruited by what he takes, but on the contrary, insensibly turning weaker and emaciate, and sometimes after he has eat or drunk any thing, the discharge of that Liqueur is more plentiful, and its colour whiter than at other times. We may try what Astringent Medicines we
do

do for closing it up, in case it should only be a small 161
puncture, or tho' only one of the Branches is cut, and except
it is one of these two Cases, *Condamatum est*, the Patient
must die.

We know when the Diaphragm is wounded by the draw-
ing up of the *Præcordia*, there is a pain felt at the Back:
bone; Respiration is performed with a great difficulty and
Pain, the Patient endeavouring to perform it all by Mus-
cles. — If you'll consider its Origin, Structure and Inser-
tion, it will be evident that Wounds of the Nervous Mid-
riff always prove deadly. All we can do for those of the
fleshy part is, to be very cautious in the Use of all the *Non-*
naturals, to stop the flooding, if there is any, by *Astring-*
ents, and endeavour their Reunion by injection of gen-
tle balsamic Medicines. Very frequently even after very
small wounds of the Diaphragm, some of the Viscera of
the Abdomen insinuate themselves into the Thorax, of
which Bonett. *Anat. Pract. Lib. 4. Sect. 2. Obs. 21.* has
nine Examples collected. It is next to impossible to
determine certainly when this is the Case; and tho' we
should, from the difficulty of breathing by the Lungs being
shattered, from the want of appetite, or frequent Cholick
pains, yet we can do little or no service, the Patient
may for some time live miserable, in this Condition, but will
be brought to his grave by it at length —

If the *Mediastinum* is wounded, pain immediately is felt
below the Sternum, and we may judge it by the depth
the

162 The Instrument was thrust in, and the Direction with which it was done; but as this part is not one of these immediately concerned in life, there is no great hazard in it, unless some of its large blood Vessels are cut, then it is to be treated the same way as any other part in the same condition where neither Eyes nor Hands can reach. We just now hinted at this method in the cure of a wounded Diaphragm—

Wounds of the Abdomen.

Wounds of this parts may be divided as we did these of the Thorax.

- 1st Of the containing parts with perforating into the cavity.
- 2^d Where they reach into the cavity but hurt none of the Viscera.
- 3^d When the Viscera are wounded.

We know them to be of the first Sort by examining the direction of the Blow and the length of the Instrument that was thrust in, by placing the Patient in the same position he was in, when he received the Wound, and introducing the Probe the same way the Instrument went, and then by any Liquor we inject into it immediately returning.

They differ either in their Prognosis or Cure from common wounds only with this difference, that in case they have gone deep, and a very firm cicatrix is not made upon them, they may give way to the pressure of the Viscera, and a Hernia may follow upon them; therefore by tight bandage in the

in the time of the Cure, and afterwards making the Patient bear some Band or Machine for compressing that part, we are to Endeavour to prevent it.

The same means as in the former Supposition will discover if these wounds penetrate into the Cavity, and then the Omentum or Intestines generally present themselves at the Orifice, unless it be very small. We are assured the Viscera are not hurt when no ^{dangerous} Symptom of Pain, Inflammation, Fever, Fainting &c supervene, and that no Blood, Faeces, Urine, Bile &c come out at the Wound when put into the most descending position, and that the Ligor that was injected comes out untinged and mixed with any kind of Matter. Frequently enough it has happened that people have been pierced quite thro' the Belly, and not one of the Viscera hurt as Wiseman Lib. 1. Cap. 8. says Decad. 5. Lib. 3. sufficiently coincide when we see that all the Viscera are safe, we are as soon as possible to close up the Wound, first taking care to get out all the Air, which remaining within produces several effects, as is already moved in our discourse of Wounds of the Thorax; If the Intestines come out at the Wound, as they are very apt & liable to do, and are not hurt, we are immediately to reduce them by pressing them gently in with our fingers, If they have been any time out, we are first to foment and warm them by applying any little Animal cut up alive to them, or using Ropes squeezed out of some emollient Decoction, as of Chamomile Malv. Bis malv. Mercurial. &c boiled in Milk and water

164 Water. But if the Orifice is small, and a good part of the In-
-testines thrust out at it, and these filled perhaps with Air
or Faeces, or if much inflamed, so that they cannot go back
as they came out, we endeavour to remove the Inflamma-
-tion and soften the faeces with these fomentations, or by mak-
-ing some small holes in the Gut with the point of a round
needle, which may separate the and not cut them.
we give an Exit the Air, by which means they become so
much softer & less as to return, but gently pressing into
the Abdomen. But if that does not succeed easily, we are
not to endanger the Contusion of them by using violence,
introducing them, but must make the wound larger, else in
a little time by the pressure upon them at the Wound, the Cir-
-culation may be stopt in them and they mortify; in that
Case the Aperture must be enlarged, and if the Epiploon
come out and mortify, it must be tied and cut off. When
these are reduced, they order the Patient to be shaken a little,
that the parts may be brought into their natural position,
again, Then to proceed to the Gastrophagia, as in the Opera-
-tions, and here you are to observe the same Rules as in
the Interrupted Suture, for beginning the tying of the threads
if there is no Blood or matter evacuated within the
Abdomen or ~~there~~ Momentum spoiled, it is to be dressed as other
Wounds with Suture and proper bandage, which is the napkin
and Scapular after embrocating the Abdomen well apply
on it a large Compress dypt in Sp. Vini, and of Ros. acq.
: croc. warm Claret &c. Authors generally order a soft
pointed

pointed Tent with a Thread ^{round} ~~upon~~, it to be applied in the lower part without making any supposition of Blood, matter, &c. being lodged there, in which case only, and that when you are assured of it, the Tent is of any use, but rather very prejudicial, first, frets the parts, brings on Inflammation, and protracts the cure. An Example of this See in Wiseman Book 5. Cap. 8. Art. 2. Nay, Garangeot is of opinion, that Tents at any rate are prejudicial here, because, says he, besides the Inflammation and pain that they occasion, they rather hinder the evacuation of Pus, Blood, or Sanies, which by reason of the Retraction of the Lips of the wound, would have liberty enough to come out without Tents; When the Omentum is Tied, the extremities of the Thread that ties it are to hang out of the Wound, after the Stitches are made —

After the dressings are applied, lay the Patient so that the Wound may be lowest, and he may lie upon it, by which the matter, if any is contained, will be more freely evacuated and no hazard of any falling from the Wound into the Cavity of the Abdomen, prevent fever and Inflammation in the part by bleeding, spare Diet, and frequent Injection of warm Glysters, Go on in the rest of the Cure as is already directed in the general Cure of Wounds by Symphysis, observing only, in case the Omentum is Tied to draw out the Thread, when once the mortified part is separated. —

We come next to Wounds of the Viscera contained within the Abdomen; In discovering the Lesions of which,

166. we must compare the Directions of the Thrust and the length of the weapon penetrated with the situation of the Viscera, taking along with us the posture in which the Patient was, which may alter the position of the parts much; then observe the Symptoms, as Pain, Fever, Inflammation, Syncope &c which happen after it And Lastly, See if the Contents of these Viscera come out at the Wound. —

So much for a general way of discovering; Which premised, we come to examine the particular Viscera. and First, of the Intestines, which take up a good part of the Abdomen, and are defended the least of any of the Viscera. Upon Wounds of the Intestines these Symptoms generally follow, A Tension over all the Abdomen occasioned by the pain in these Wounds; If the Small Guts are hurt, the Aliment somewhat digested comes out at the Wound; of the great, then the Faeces are evacuated, and the Dressings smell of them, Blood is excreted by Stool; or sometimes, if it be in the superior Intestines, is vomited up, If the Intestines come out at the external wound, you either see the Cut in them, or are confirmed there is one by the Flaccidity of the Guts, for the Air that usually distends them has escaped by the Aperture —

The Prognosis cannot be very favourable, as we had occasion to demonstrate already; If the Wound of the Gut is not soon discovered, and not very large, we may heal it as if the Teguments only were hurt; thereby we shew the exposing of the Intestines too much to the Air, whence a

gangrene might follow, as we see *Julp. Lib. 3. Obs 20. 167.*
blaming a Surgeon very much for taking too much pains
in seeking out the Extremity of a Gangrened Gut, and
we see several examples of this Case. *Variola Lib 4.*

Obs. 9. tells of a young Gentleman, who accidentally
shot himself into the belly; a few days after he passed
the Bullet by Stool and was perfectly cured. *Filsan Cent. 3.*

Obs. 74. gives the history of a Weaver who was wounded
with a sword in the Abdomen; a year afterwards, the
point of it that had broke off and lodged in his belly all
the time was excised by the Anus.

Histoire de l'Acad. des Sciences 1700. 5th Febr 4th 4th Mr.
Littre reports the Case of one who had several Wounds of
the Intestines, and yet recovered. *Bohn Sect. 2. Cap. 4.*
cites a great many Authors to the same purpose, yet
for all that concludes them deadly wounds, since Art
has no hand in the Cure, but it is chiefly the work of Na-
ture. All we can do is, to order a strict Regimen, keep
the Guts as clean as we can, and foment them by re-
peating Glysters, unless it be the large Intestines, for
then the Injection may get into the Cavity of the Abdomen,
and so create abundance of mischief. If the Wounds of
the Guts are large and we can come at them, we must
sew them up with the Glover's Stitch, before we reduce
them, which is done in the Operation of the *Gastrographia*.

The last way that the Intestines may be wounded is,
when

168. when they are entirely divided. If this happen in the superior smaller Intestines, there is no possibility of escape the Patient must die; but if it is lower down, and we can come at the Gut's inferior Extremity, the Patient may be and has been saved, which only can be done by stitching this Superior part to the external Wound and so making a new Anus, as you may see in the *Acta Eruditorum Lipsij* July 1682. and August 1712. And in the *Memoires de l'Acad. des Sciences* 1700. Mr. Littere assures us he has seen three men and one Woman in this Case. In these same *Memoires* 1701 Mr. Meray relates the Case of a young Girl who had a new Anus this way made, and that afterwards by rubbing herself in her Chamber suffered a *Procidencia Uteri* here the same way as the Colon falling down on the Rectum. If we can come at the lower Extremity of the dissected Intestine, we tie it before we stitch the other to prevent its Contents falling into the Cavity of the Abdomen. Coercail Obs. Anatom. 6. tells a very strange Story of a Girl, who laboured under a *Bubonocèle*. The Tumour suppurated, the Gut appeared gangrened, and the Excrements came out with the Pus; the Surgeon cut off half a foot of the Intestine and cured her wound without any Inconvenience to the Patient, either as to the Excretion of the Feces, or return of the Hernia.

Wounds in the Stomach, we told you in the general Prognosis were incurable by Art, yet because some

surprising

surprising Instances of Cures are handed down to us, we may endeavour to assist Nature to whom we owe any good in this case that is done. We know when the Viscus is wounded by the general method of observing the place where and the direction wherewith the wound is given, and how far the weapon penetrates; and then by the symptoms that appear, which, according to Celsus Lib 5. Cap. 26. S. 15. are Singultus or Hiccup, which is a Convulsion in the upper Orifice of the Stomach and Diaphragm, occasioned by the Sympathy of these parts from the Communication of their nerves; with this Convulsion they are drawn up suddenly and as quickly fall down. Constant Vomiting is owing to the Convulsive Contraction which all wounded parts have; If the Weapon has penetrated into the Stomach and any Vessel is hurt, blood will always be thrown up, the Meat & Drink taken comes out at the Wound, the pulse is weak, then cold Sweats arise, the Extremities turn cold, which last Symptom only happens, when the Circulation begins to turn weak, either from loss of Blood or the Patient being made faint by the constant vomiting —

The Prognosis here is very unfavourable. Some propose to stitch this wounded part of the Stomach to the Teguments, and in Vander Weil Cent 1. Obs. 39 we see that two were cured this way. Durman Chirurgy, Lib. 2. Cap 2. assures us he has performed this Operation in several with Success, tho' I believe there must be a great deal of Difficulty to come

170 come at the Stomach. However, this with the general method of curing Wounds is all that can be done or attempted as to the Surgical part, and whether this is done or not, we ought to keep the Circulation low by plentiful bleeding and a very spare Diet, rather using Nutritive Glysters made of Broths, than Aliment by the Mouth, keeping a very strict Regimen in the other non-naturals; so by this we may prevent the great Haemorrhage and the Convulsion from the Vessels of the Stomach give the divided Fibres an opportunity to unite and hinder any thing from falling into the Cavity of the Abdomen. Diemerbroek. Anat. Lib. 1. Cap. 6. tells us of one whom he thus cured of an Wound of the Stomach without Stitching.

The Omentum cannot well escape in these Wounds but affords no remarkable Phenomena, unless when its Blood Vessels are opened.

We know the Liver is hurt by the Blood that comes out of the Wound in large quantities sometimes with a little bilious mixture. The pain in that part, which likewise is communicated up as far as the Neck by the drawing in of the Praecordia; the Patient frequently has a vomiting of Blood & other times passes it by Stool. This joined with the general method proposed, which we must take along with us in all Wounds of the Abdomen may give us ground to think that the Liver is hurt.

The Prognosis is never good, all that can be done is, to observe

observe a strict Regimen apply to the part astringent Medicines, and by resolvent vulnerary Decoctions prevent an Abscess in the Liver afterwards, which too often happens as you may see in Julp. Lib 2. Cap. 26.

The Gall Bladder discovers itself to be wounded by the bitter yellow Bile that comes out

The Signs of the Spleen being hurt differ nothing from the Liver, only the Blood is blacker.

The Pancreas lies so deep and covered with so many other parts, that we cannot well know but only guess by the general Method when it is wounded. The large Veins and Arteries within the Abdomen are known to be wounded by the impetuous Efflux of Blood, the cold Sweats, and Faintings of the Patient.

The Marks of the wounded Kidneys are Pain & Tension in that part, a thin watery Blood coming out at the Wound, and Blood evacuated with the Urine which is voided with difficulty. There is not much to be promised on the Cure of any of these Wounds, and the Cure is much the same with that of the Liver. The Ureters are with difficulty distinguished, and cannot well be wounded without some other part being likewise so hurt. However, we have reason to believe they are hurt, when upon a wound penetrating the Cavity of the Abdomen, a great quantity of an Urinous Lymph is constantly poured into that Cavity. All we can do here is, to preserve the Patient as long as we can, by letting out the Liquor, and

172 and giving but small quantities of Drink that there may not be a large Secretion of it, together with the strict general Regimen. The Bladder soon discovers its wound, by the Urine that comes out of the Wound. The superior part of it in my opinion is easily cured, if the Wound is made by a cutting Instrument; it may be cured by the first Intention, by performing the Gastrophagia, and stitching the Bladder along with it. It is true the Antients reckoned these membranous parts very dangerous to be wounded. Only look into Vander Weil Cent 1. Obs. 8. and Bohn, you will see great numbers of Instances of Cures. I shall only add one of a Soldier at Stirling, who was shot into the Bladder, whence the bullet was extracted by the Surgeon, and the fellow very soon cured after. When the Cure is made by Symparsis, the Intestines sometimes presses thru on the Peritonia and occasions an Hernia, as you may see in Ruysch. Obs. 15.

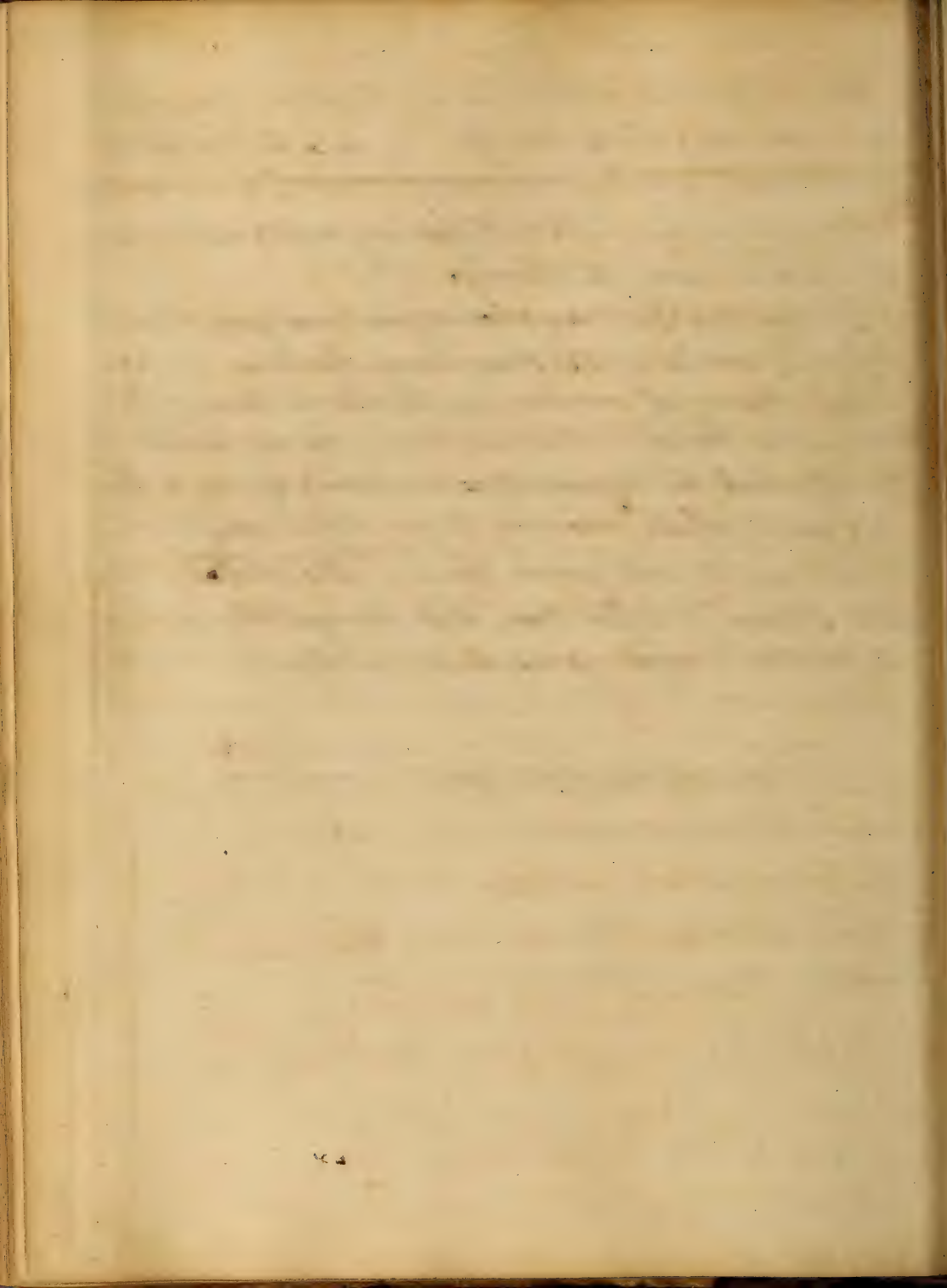
The Womb is not well discovered to be wounded nor easily come at, unless in those that are with Child; then indeed it is of the worst consequences, by the prodigious Efflux of Blood. The only way to save the Woman is to bring away the Child as soon as possible; for after the Woman is delivered, the Womb can contract itself, the divided Vessels are pressed together, and their mouths stoppt and the easier access of the Blood into the Cavity of the Uterus, in the coming away of the Lochia then thro the wounded Vessels will help to stop the Haemorrhage by the wound
on

on which the greatest hazard depended —

Now, in all these wounds we are to prevent as much as we can any thing from falling into the cavity of the Abdomen, to hinder the Access of Air, and not to allow what is there evacuated to lodge any time, as it must corrupt and destroy the Viscera.

By this time you may observe we have gone thro' the different wounds of the three large cavities. In the general history of wounds we touched at these of the Seguments, Muscles, Arteries, Veins, nerves, Tendons, &c. of which the Extremities are made up as to their soft parts, which, according to our definition of a Wound, are the only proper Object of this study: therefore I have discussed them, and consequently finished all that we designed to say on this Subject —

End of the first part —



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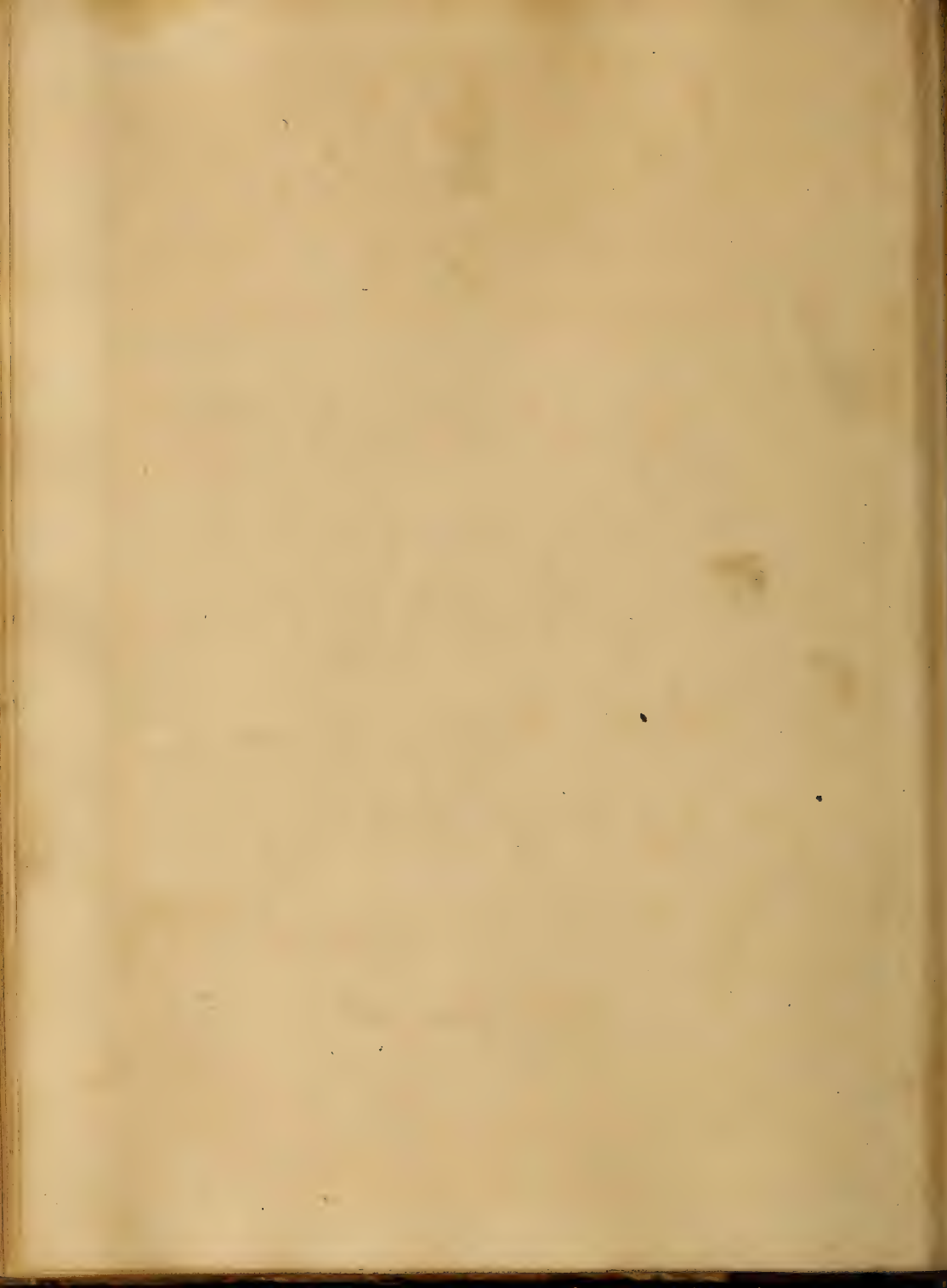
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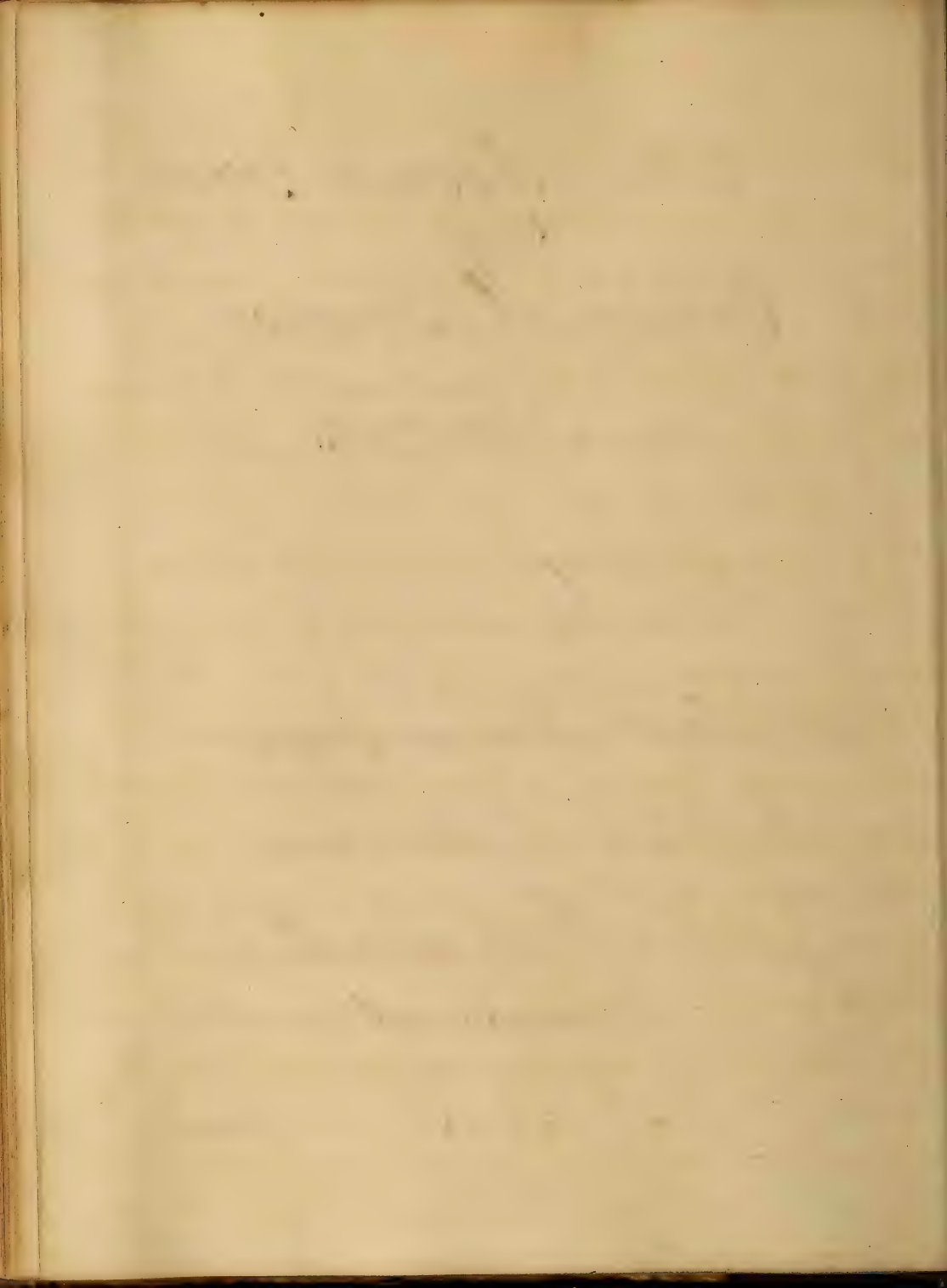


The Second Part
being
A Chirurgical Treatise
on Tumours

by

M^r Alex^r. Monro Senior
Professor of Anatomy.
in the University of
Edinburgh—

F. R. S. —



Of Tumours in General 1.

That part of Surgery that I design to treat upon this Season is that of Tumours, than which there is not a more perplexed or intricate Subject in the whole Art, either as to the difficulty of reducing it into any thing of a regular Method, or accounting for the several Phenomena that are observed, and sure no wonder when in the definition of this disease scarce two Authors agree, nay, in the very Denomination or Terms in which they would express it, they differ. Hippocrates in his Aphorismes, Lib. 4. §. 34 and frequently elsewhere calls a Tumour $\Pi\omicron\delta\iota\upsilon\mu\alpha$, and $\Delta\iota\upsilon\mu\alpha$ is a frequent Term with him for the same in his Book de Morb. Vulg. Lib. 6. §. 12 and Lib. 7. §. 64. by which two words we now always understand two particular Tumours. Several Authors use Αποσιμη to signify the same; tho' it is what we properly call an Abscess, or when there is matter collected. I mention these by some pretended to be Synonymous Names, that in your reading you may not be stumbled with them, when the Author takes them in any other than the common received Sense.

But I shall not trouble you with any Variety of the Definitions of Tumours, which would rather be nauseous than

2 Than instructing, telling you only know what my own meaning of this is, since it can only necessary for your present purpose. Perhaps however, several here would be satisfied to know the Authors different Sentiments, wherefore I judge it not amiss to cite the particular places of some of them where you find such variety as in Fallop. de Tumoribus P. 2. Cap. 13. Aquapendent. de Tumoribus Cap. 1. Forest. in Obs. Chirurg. Lib. 1. Schol. in Obs. 1. Sennert Med. Pract. Lib. 5. Cap. 1.

By that Disease then we call a Tumour, is understood a preternatural Increase of the Bulk of any part of the Body, entirely preventing or in part hindering the performance of any of our Actions, occasioned by an Obstruction of our Liquids in their Canals, or a Stagnation of these Liquids when not confined within their proper Canals —

By the preternatural Increase of the bulk of any part we distinguish the Disease from any Getting out, which in several parts serve for very considerable Uses, and gradually becomes more conspicuous as the Body grows. E. g. The Hypo-physis in Men and the Mamma in Women; entirely preventing, or in any part hindering our Actions, so that a lean man turning fat, or a woman giving suck is not

not to be looked upon as labouring under a Tumour occasioned by an Obstruction of the Liquids in their Canals; fairly excludes any extraneous Bodies lodged within us, as Luxations, Fractures, and Ruptures. These last are generally treated of among Tumours, tho' there is no more reason for it than for the other two preceding, since all of them agree in the common Cause of Swelling which appears, viz the removal of parts out of their natural Situation into some neighbouring place.

After having explained what is meant by a Tumour, we come next to examine and enquire into the nature of the Causes, which are mentioned in our Definition, viz an Obstruction of the Liquids in their Canals, and a Stagnation of these Liquids when they escape out of their Canals —

For the better understanding this Subject, I presume it will be necessary to mention some of the properties of our Liquids and Solids, which those that treat of the Animal Economy have demonstrated

1st That our Liquids consist of Spherical Globules of different magnitudes, the degrees of which are vastly numerous, and scarce to be determined; for, we know the red Globules are the largest, yet the degradation paves our knowledge

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4. 2^{dly} That the larger Globules, when no other power opposes are resolved into Matter. For a further proof of these two Propositions, consult Leuwenhoek, Pitcairn, Boerhaave's Institutions. Sect. 225.

3^{dly} That these Globules have mutual Attractions which increase in proportion to their Surface of Contact. 'Tis assumed by Spolet, Bellini, and Wiel, that several substances have a power of diminishing and increasing their attraction, which are known by the name of Coagulants & Resolvents —

4^{thly} That the Solid parts of our Bodies are nothing but a Congeries of Vessels, whose Series is as little to be determined as that of the Globules —

5^{thly} The larger Vessels are made up of the Smaller —

6^{thly} All of them have a power of contracting —

7^{thly} The smaller the Vessels are the more frequently they anastomose by Injection & microscopical Observations. They are evinced in Malpighius, Leuwenhoek, Ruysch &c —

Now these things being premised, we may return to the first Cause of Tumours, viz Obstruction or Stopping of the Course of ^{the} Liquid thro' the Vessels; When the Circulation in the obstructed Vessels is wholly or in part hindered. This must happen either from the Strainess of the Vessels

Vessels, or the bulk of the Liquids or both — 5.

The Vessels will be straiten'd by any compressing force, as by Tumours of any kind, Fractures, or Luxations, too tight Bandage, Weight of external Substances, which by the Greeks is called *σπασμός* whence we find in the *Memoires del Acad. des Sciences* 1707. Feb. 11 and 1712 March 12, an Inflammation and Gangrene occasioned by an Aneurism; hence so often Inflammations and Oedematous Swellings upon Luxations and Fractures. Women with Child very often have, or rather, seldom miss to have Oedematous Thighs and Varicose Tumours; hence comes many Abscesses & Gangrenes after too tight Bandage. After tedious Diseases few miss Gangrenes on their Hips and Shoulders —

The Diameter of the Vessels may likewise be diminished by the contraction of its own Coats, which are either owing to the Elasticity of the Fibres of those Coats, or to *σπασμός*. 3rd, i.e. any Tumour increased either by the rigidity of the Fibres, or any Stimulus applied to the Vessels, that form these Coats, or to the defect of the Liquids within the Vessel itself

The Second Reason given for Obstruction was, the Bulk or Largeness of the Liquids increased, which may arise either

6. either from the Change of the Figure of the Globules, from a Spherical, which is most capacious, into any other. This will happen when the Motion of the Fluids is too languid, by the Laxity of the Vessels, or the small quantity of the Liquids, which seems to be the Cause of Edematous Swellings, and Dropsies, in weak emaciated people. After a large Hemorrhage the Liquids become too gross for passing thro' the Canals; by a preternatural Union of several Globules, from Cold, too great Heat, Spiritous Liquors, sharp Acids, violent Circulation &c., whence Inflammations, Erysipelas, after too violent Exercise or a Debauch; Gangrene or Sphacelus after being exposed to Cold, or the heats of Summer, and Schirious Tumours from an irregular course of Diet, and Pleurisies after drinking hastily of cold Liquors when hot with Exercise —

Now tho' both Liquids and Solids are in a perfect good condition, yet if the large Globules make their way into smaller Vessels than they can circulate in, an Obstruction will follow, which may happen from a too great Impulse given to them, or, a relaxation of some of the Vessels, especially, if upon these Cases their opposite follows. E. G. If one after heating himself by Exercise or otherwise

otherwise, would swallow down a great quantity of cold Liquor, or expose himself to a cold wind; by the Cold's sudden contraction of the Vessels, which before were very much dilated, he would hardly escape one of the inflammatory Diseases, such as Angina, Pleuritis &c. a Phlegmon or Erysipelas externally —

Now from whatsoever of these causes an Obstruction in any Vessel, or in severals is produced, 'tis plain that the Circulation being here either in part or wholly stop'd, the succeeding Liquids, which are constantly propelled, will endeavour to distend the Vessel in w^{ch} they are contained, and this Distension when sensible is what we call a Tumour.

The Second cause of Tumours in our Definition was, the Stagnation of our Liquids when not confined within their proper Canals. The Cause of this is either a Laxity, or Weakness, of the Vessels, or else a Desolation in the Coats of the Vessels, may either heat its extremity as appears to be the Cause of all sorts of Dropsies, or the weakness may be at its Sides, as in the true Aneurism and Varix.

By a Solution of Continuity in the Coats of the Vessels

8. Vessels, several Tumours may be produced, as the Aneurism Rhombus, Emphysema, & those that follow Contusions. —

The differences of Tumours are taken from their Appearances, Whether round or flat, deep or superficial, large or small, hard or soft, white or red, &c which the Hand or Eye can discover.

2^d. From the place in which they are, whether external or internal, in the Arteries, Veins, Glands, common Teguments, Muscles, Tendons, Membranes, Nerves, Bones, or Cavities.

3^d. From the time they take in forming, if they form very quickly, they are said to be by Fluxion, if slowly, Congestion.

I don't think it worth our trouble to insist upon the Galenical distinction from the four predominant Humours, of Blood, Bile, melancholy, and Phlegm, and the different combinations of these, nor on the consequent differences those Sectaries make of Cold, Hot, moist, and Dry, & the various degrees of these Qualities, nor on the Paracelsian Chemical Principles of Sulphur, Salt, and Mercury, by all which, diseases are pretended

pretended to be accounted for, since they are now ex-
posed, being nothing but a meer Sargon of Words.
and incapable of ever leading us into the true na-
ture & Cure of Diseases.

The Prognosis of Tumours in general is to be
taken from the nature of the Tumour, which we can
only know by a particular history of them, from the
Bulk of them, from the place they are in, and from
the constitution of the Patient.

As to the 1st of these Intentions, I can say little,
except to copy out Boerhaave from Paragraph 125 to
124. which would take a considerable time which I
think may be spared, the book being common —
The 2^d Intention is performed by corroboratives and com-
pression —

The Last, by Resolution & Evacuation —

Now, as there are hardly any other general Rules
but what Exceptions may be made against, nay, as a
general method of Cure is handed by a great many Au-
thors, where frequently more cases occur, where it ought
not rather than where it ought to be followed, as you
may be easily convinced of by looking into Aquapend.
Lib.

Lib. 1. Cap. 4. Munich's Chirurg. Lib. 1. Cap. 1. Fallop de Tumoribus Cap. 7. 8. 9. And really the greater part of what they call general Medicines seem rather adapted to the particular case of an Inflammation. I shall only notice these cautions we are always to use, before we attempt the Cure.

1st. To consider well the nature of the Tumour, to regard its State, whether in the beginning, increase, or Height, or decline, and likewise to observe the Patients Age, Sex, Constitution &c —

We should now proceed to the particular Tumours, whose history one would be affrighted to attempt by looking into the various numbers which Authors reckon up; I will only cite one Writer, Sennertius Lib. 5. P. 1. Cap. 1. who from Inguartius musters them up to 226. Now only to remember the very names of them, and to dip so far as to be able to distinguish them, is a tedious Study, yet by far the least part of the Work. What despair then must a young Student be in of never becoming master of an Art, one Branch of which in appearance is like to spend a Life time? however, Gentlemen, for your encouragement

I must tell you, that a great number of Synonymous terms are in that Catalogue collected and laid down as different Tumours; as also that a vast many diseases that have no affinity to our present Case or Subject are there reckoned, and truly without using any such art in mustering up Rolls, there is a very copious Subject left, such as at present we cannot discuss —

These we design to insist upon may be comprehend-
ed under a few general heads; for, by the definition of
a Tumour that was given, you may know we ex-
cluded all extraneous Bodies, Hernias, Luxations
and Fractures, neither shall we enter into a detail
of Cutaneous Tumours, or Tubercula, as they are
commonly called, reserving them for another occasion;
nor meddle with the bony Excrescences, as designing
some time to treat of diseases of the bones by themselves,
nor touch at these Tumours with which the Eyes are
troubled, since, in my opinion, the Maladies in that
part deserve a particular Consideration. All which
being subtracted, our present Subject will be compre-
hended under these few particulars, viz. Phlegmon,
Erysipelas, Aeloma, Schirrus, Encysted
Tumours

Tumours, and These in the largest Vessels, together with their several Species and Consequences —

The next Question is, in what order these are to be treated of, which indeed is not a little Difficulty, for some are easy to be accounted for, and these parts they occupy are better known to us, while at the same time they are more complicated & worse to cure, than these others whose nature is with difficulty found.

The Method I shall follow is, to begin with these of the largest Vessels, whose Structure and Action is better and most generally known; proceeding forwards to the Tumours of the smaller Vessels —

The true Aneurism.

A true Aneurism is a soft & discoloured Tumour, in which is a sensible pulsation, it disappears when pressed, but returns immediately when the pressing force is taken away; the Cause of it plainly is, a Weakness in that part of the Coat of the Artery, so that 'tis not able to resist the Impulse of the Blood; this depends either upon any wound of these Coats, or an inflammatory

Plicaria

Cicatrix brought upon an Wounded Artery, or the Exosion
of the Fibres by some acrid Humour, or a simple Re-
laxation of these Fibres, or a too great or sudden Im-
petus given to the Blood. The Appearance of the
Tumour, the Phenomena it produces, its Symptoms
and Method of Cure are all the same, but all these
have already been treated of in our Discourses upon
Wounds. therefore at present to be passed over

The Varix.

The Veins, whose Coats are not near so strong as
those of the Arterys, are frequently distended by
their Liquids, and form a knotty blewish Tumour
without any Pulsation, by altering the Member or
by compression disappears, but returns as soon as the
compression is taken off. The knotty Appearance is
owing to the Valves which make so many divisions
of the stagnating fluids; the blewish Colour depends
upon the Blood appearing thro' the Segments and
Coats of the Veins. This Tumour, which the Latens
called Varix, the Greeks, Κίσσις, may happen in
any part of the body, especially where are scuticular
Veins

4 Veins, or in any place the Coats are not assisted in performing the Circulation; for these wanting the Action of the Muscles, to which the other Veins are subjected, are not so capable of propelling their Liquids, and therefore more capable of being distended by them, and still more so when the Blood must be raised contrary to its own Gravity, i.e. in the most depending parts, hence the lower Extremities, Scrotum & Testicles and Anus are so frequently with this disease —

Now there are a great many Causes to which this Tumour may owe its Original, as first, A Weakness of the Coats of the Veins, either from a simple relaxation or too great distension, or, an Erosion of the Membranes. For thus 'tis plain, the Blood wanting the necessary resistance will distend the Vessels — Secondly, The thick Sisy Blood that is apt to coagulate, requiring a stronger Contraction than ordinary in the Vessels will produce the same Effect. Hence all our Observers remark, that Hypochondriac, melancholic people, whose Blood is of that nature, are so subject to this disease —

3^{rdly} The same reason may be given for Varices in those of the plethoric Constitution, —

4^{thly} A greater Compression upon the internal Veins, will force a greater quantity of blood into the cutaneous, than they are able to propell, then such a Tumour as is now treated of may arise. Such Seem to be the Cause of the Varices upon too violent motion or straining, and hence such tumid Veins round Schivorous Tumours are in distended Mammæ. —

5^{thly} When the Trunk of any Vein is compressed, so that a free Circulation is stopt, or interrupted, all the Branches of it must be overcharged, since the Arterys are still forcing in blood. Now it comes to the same account whether the Compressing force be Ligature, weight, or any heavy Substance, hence we see this disease occasioned by riding, too tight bandage too strait Garters, & women very frequently labour under it —

From the description already given of this Tumour, the Diagnosis is evident. The Prognosis is generally agreed on to be favourable, or in other words, there is seldom any great hazard, of these Tumours of themselves

Authors

16 Authors seem to lay it down as a Rule, that Varices
when happening as a Crisis to some other Disease, we
is not unusual, for according to Hippocr. Aphor. Lib. 6.
Paragr. 21. Mad people are cured if Varices or Hem-
orrhoids supervene, they order them to be let alone,
else they alledge a train of Dangerous Diseases, such
as Hemoptoe, Dropsie, Apoplexy, &c will follow. See
Galen de Vena Sect. et de atra Bile; or Wiseman
Book. 1. Cap. 14. Which I presume may be thus account-
ed for, If the Veins be opened and evacuate the Matter
that is offensive to Nature, you easily allow that the
undue Stoppage of that Evacuation may be of the worst
consequence, since the next part the matter may be
lodged in (its Cloaca being shut) is perhaps absolutely
necessary for life. Now tho' the Varices are not opened,
yet Nature seems still to point out this way for dis-
charging herself: And besides, whatever way you
take to cure these Swellings, you add to this mischief.
if by Compression you force back into the mass of blood
morbid, coagulated, or putrid stuff, which may soon
dispatch the Patient. If you pretend to cure the
Tumour

Tumour by Incision and Ligature in such a Sacrochymic Body as we supposed, you bring on numerous Symptoms that may baffle all your Art to remove. Nay, Observators, as Fallop. de Ulcer. Cap. 44. Wideman Book 1. Chap. 14. discharge absolutely to meddle with these Tumours, unless they are very large, and there is reason to fear lest they should burst or inflame and become painful, or have degenerated into a large malignant Ulcer, tho' indeed I can see no reason why the Cure should not be attempted before all these Symptoms appear; since by neglecting them, they are always in hazard of degenerating into such as as these authors own to be necessary to evacuate.

The Indications are to be taken from the different Causes assigned for Varices; if from Compression, that force is to be removed, if from Plethora, Evacuations, such as Bleeding plentifully, Purgings, &c. The quantity of the Liquors is to be diminished; if from Stagnation of the Blood, that is to be corrected by proper Medicines, which belongs to the Physician to prescribe —

If the Tumour is of a long standing, and the Veins retain

8 retain their contractile force, these simple Indications will serve. But if it is old and large, the Vessels by the Cong., and at the same time violent distension become entirely inactive; therefore another Cause comes to be conjoyned, viz a Weakness in the Coats of the Veins, This is the Case that most properly is the Surgeon's business, because the Cure depends upon external Topical Applications or Manual Operations, when the other Cases mentioned require a different Treatment.

If these Tumours are timely taken when small and before the stagnating Blood has coagulated, there is no difficulty of suppressing them by applying Corroboratives & Astringents, such as Flor. Balsam. Rosar. rubr. Cort. Granator. Rut. Supress. Rad. Consolida. major. Aristoloch. Gum. Arab. Sang. Dracon. Myrrh. Mastich. Sap. Calaminar. Bol. Armen. Vitriol. Alumen &c which may be made into the form of a Cataplasm or cakes with their own Decoctions, Claret Wine, or some such Astringent Liquor, or Whites of Eggs, or yelue, or Solution of some Gums

Gums, or into a Plaster with Wax, Tallow, or Oiling. 19
The Compositions kept in the Shops proper to be applied in
this Case are, the Impl. Cesar. ad Herniam, Ung. Co.
mitif. &c. Muiy's Decad. 1. Ob. 6. recommends Antacid,
by which I suppose he means the Testaceous Powders,
made with some glutinous stuff into a Cake, and gives
some Instances of Cures performed by this Medicine, tho'
it is to be observed, he applied tight Bandage, without
which indeed all these means would be of little or no
Service. Thus Great Wiseman reckons it sufficient
for the greatest part of Varices, and certainly where sut-
uring is not required it is the most effectual Method, for
by the Compression of the Bandage upon the Tumour,
a sufficient resistance is made to the Blood, to hin-
der its dilating the Veins, till once the fibres of
their Coats have recovered their Elasticity so as to be
able to bear the Impetus of the Blood without yielding.
Wiseman Book 2. Cap. xi. relates five successful In-
stances of this method of Cure. If the Varic is not
very large, and you have reason to suspect that the
Blood has congregate in it, which you can distinguish
by

20 by the Tumour's not disappearing upon Compression, there would be danger of forcing the clotted Blood into the Vessels again by the former method of Compress and Bandage. We must therefore first evacuate the stagnating matter by opening the Vein with a Lancet, as in the common operation of Bleeding, only the Orifice is to be large, then with your finger squeeze the Blood out, and afterwards prevent the collecting of it again, and distension of the Veins as just now described —

The Last Cure to be treated of is, when the Tumour is of such a prodigious Bulk, that there is no hopes of the Vein's being capable of recovering its former Capacity, as from Observators we find they many & sometimes are distended to an incredible Size. Lower de Cordes Cap. 2. tells us of one that could contain two pounds of Blood. Hildan. Cent. 2. Obs. 35, relates the Case of a monstrous Varix, no less than a Span long & as thick, as one's Arm. Now such Varices require to be speedily remedied, because of the mischief they are in hazard of occasioning, such as violent Haemorrhages, if this should burst, which, if a skilful person is not at hand, may

may be of the very worst Consequences. Doliis Encliped. 21
Chr. Lib. 5. Cap. 12. relates two Cases from the German
Ephemerid, one of a Woman seven months gone with
Child, who lost her life by the bursting of a Varix in her
left Leg. The other was of a man who would have
perished by the same, had not a Surgeon come in time,
to prevent it. These monstrous big Varices likewise by
the Obstructions of the Vessels in the neighbouring parts
by the Compression, as also by the Matter turning acid,
Erysipelatous, Edematous Tumours or putrid malignant
Ulcers may be produced, as you see in Muys Decad 4
Obs. 6. Decad. 2. Obs. 2. and Hildan. Cent 2 Obs 85.

Several Methods of Cure have been proposed by Au-
thors. Celsus. Lib 7. Cap. 3. used Burning and Ex-
cision; in order to cauterize they laid the Varicose
part of the Vein bare, then with a small red hot
Iron they softly pressed it skimming carefully to
burn the Lips of the wound; at every four finger's
distance they thus cauterized, then cured it as a
common burning. In the beginning of the Excision, the
Vein was carefully to be dissected with Hook and Scalpell,
then

22 then blunt hooks were introduced below the Varix,
each at four fingers breadth distance, after which Ap-
paratus the Vein was raised by one of the Hooks and
there cut thro by pulling the hooks nearest the divided
Extremities of the Vein. these extremities were torn out,
then cut off. Thus the Cutting and Tearing were conti-
nued till all the Tumour was destroyed. Parey Lib. 13.

Cap. 20. proposes to apply Potential Caustics all along
the Varix, and so to open it, after the Eschar is once
separated, he cures it as a common Ulcer; Celsus's
method of curing is so painful and cruel, that indeed
it would require a Marius to undergo it, and at the
same time unsafe, as are also both the actual and
Potential Caustics, because the extremities of the
Veins not being stoppt, the Patient is in danger of
his life from an Hemorrhage, that may happen:
Therefore they are all laid aside, and then neither Com-
pression by bolsters nor bandage, nor simple Evacu-
ation are sufficient to make a cure, but we are oblig-
ed to destroy the swollen part of the Vein entirely. We
must rather follow the Algineus's Method, which is by
far

for the safest and least painful, and found success; useful by several Authors, particularly Hilscen. in that Observation of his already mentioned, and Skultet. Armament. Chirurg. Tab. 43. declares he found it to be successful.

After preparing the Body the common way as before any operation where there is hazard of a Fever, and Inflammation, as is usually done by bleedings purgings, and perhaps by medicines accommodated to the Patients Constitution, together with a very regular spare Diet of good price, as Celsus call it, for some time before: after this preparation, when this Case may well enough admit of it, we proceed to the Operation itself; in order to which, by placing the Patient in a depending posture, and by Ligature on the Trunk of the Vein, we let the Varicose part be extended, so that we may cut off the more firmly, then laying the Varicose base, we the same way as in the Aneurism, of which already, introduce one thread below the superior part of the Tumour, and another in the inferior part, both which must be tied where the

24 The Tumour is opened, the blood being evacuated the wound is promoted in its suppuration by Digestives the threads are allowed to fall off of themselves, and the whole cured like a common wound. —

The Patient in the mean time being exactly regulated in all the Nonnaturals, lest by abusing any of them, Pain, Inflammation &c be brought on, as Scutell. in his Armament. Chirurg. Declarat. owns happened to himself the first time he attempted the operation, upon the Patient's using too much motion, for which loss of Reputation he would never ventured on't again, but made use of Topical Medicines. —

Now, because Varices in some particular parts have got distinct names bestowed on them, and some of them require a little different treatment from what has been now delivered in general, I come next to examine these, and First, of these that happen to the Scrotum and Testicles, which by some are esteemed Hernia or Ruptures, and are mostly numbered among the Class of these last which are Variocoele and Hydrocoele —

Variocoele

Varicocele and Circocoele.

25

These indeed properly speaking signify the same thing, for the one is the Latin, the other the Greek word for this preternatural Tumour of the Veins pre-
fixed to the common Denomination, KULN which signifies a Descent, tho' they do not deserve that Designation; however, Surgeons now days in their accounts of Hernie generally make these two kinds of Varicose Tumours distinct —

When the Veins of the Scrotum are thus distended, they call this Tumour, Varicocele, and apply the name of Circocoele to such a swelling of the Internal Veins of the Spermaties & those of the Testicles —

The Varicocele is easily distinguishable by the Eye, may have some of the same reasons for its Rise, and requires the same method of Cure as Varices in any other part of the Body, consequently come to be comprehended under the general history of Varices, which we have just now finished —

Kugokuln is not altogether so apparent, yet is easily enough discovered by the swelling betwixt the Testicle and Rings of the Abdominal Muscles; 'Tis distinguished from

26 from a true Hernia, by this swelling beginning to
flow and gradually ascending upwards, 'tis softer than
a Scirrhus, and yields when pressed, and the differ-
ence betwixt it and a Hydrocele and Pneumatocele
is known by the unequal knotty Surface it has, while
these are perfectly smooth. This disease depends
upon the same Cause, as a common Varix, and
therefore, unless it is very large, it is not dangerous.
new, Forrest. Lib. 27. Schol. in Obs. 25. mentions
a Friar who carried one larger than a man's head
about with him, upwards of twenty years; and
Montagnana tells us of another who laboured under
such a Circumstance more than thirty years; they are
however very difficult to cure. — especially if of
long standing and large —

The Incision differ not much from what has
been said of Varices in general, only that instead
of Astringents, authors generally advise to treat
this Tumour with Emollients and Resolvents, such as
Decoctions of Chamom. Mallores, Mercurials, Scordium by
way of Fomentation, or Farin. Fabar. or Sem. Lini —
Vinegar

Vinegar, Sp^t. Vin. C. Gum Ammon &c in form of 27.
a Cataplasm, or G. Ammon. Galban. Ebony Empl. de Ci:
-cut. Aquat. de Stannis cum Mercur. Drachyl. cum
Gumm. as plasters. At the same time taking Care to
keep the Scrotum well suspended by a proper Bandage,
that the weight of the Tumour may not stretch the
Vessels, and create pain, and shunning all rough usage
to the parts for these incline to ulcerate, in which case
there is sometimes a necessity of coming to the opera-
-tion of Castration (which will afterwards fall under
our Consideration) tho' as much as lies in our pow-
-er we should endeavour to prevent this disease com-
-ing to such an Extremity —

The last Sort of Tumours, which I think belongs pro-
-perly to this Class of Varicose is,

The Haemorrhoids —

By which is understood a preternatural dilatation
of the Veins that return the Blood from the parts near
the Anus. If they burst and pour out their contained
Blood, they are said to be open or true. If they are
only

26
27 only distended, they are called *Shut* or *False*, and either of these sorts may be internal or *hid*, or external or apparent. From the different appearances they make Authors have likewise put different names upon them, as *Verrucales* when resemble Warts, *Urales* when they are like Grapes, and *Morales* from their resemblance to mulberries. —

The Causes of them differ nothing from these given in general for Varices; hence *Melancholic* or *Plethoric* persons, such as indulge a sedentary life, such as are generally *astive* & women with Child are so Subject to this disease. Neither is there any part of the Body where the Veins are so subject to this distension as those of the Anus, because there are the muscles which by their Contraction might forward the Blood's Circulation; on the contrary, all the parts are lax and inactive; the Blood has almost a perpendicular Course, to make upwards, and no Valves to support its weight.

One can easily distinguish with the Eye between the Sorts of Tumours, and these other that infect the Anus, very frequently. Tho some Authors particularly *Doleus*
Encycloped.

Encycloped. Chirurg. Lib. 3. Cap. 8. chuse to make 29.
no distinction of the Hemorrhoids, Ficus, Cysta, and
Thymus, but comprehend them all under the general
name, Endyfloma. Some of these Tumours differ
very little from one another, tho' these of which we
just now treat certainly deserve to be separately
treated of. If the Hemorrhoids serve as a critical
Evacuation in plethoric and Cacochymic Constitutions,
and are not painful nor attended with Inflammation,
they do considerable Service, and are not to be stoppt
I have known several who have thrown out a great
quantity of Blood by these Veins as regularly every
month, as Women do their Menstrua, and laboured
under much the same Symptoms when obstructed.
Nay, all Authors agree, that by such an Evacuation
if seasonable and moderate, several Diseases, such as
Hæmoptoe, Pleuritis, Melancholia, Mania, Angina
&c. may be prevented or cured. Therefore in such a Case
we are not to be too anxious or precipitate in suppress-
ing this Flux; but if it is immoderate, so as to weak-
en the Patient, there is a necessity of stopping it, lest
Dropsies, & Cachexys should be its Consequences; If
the

30. The *Hæmorrhoides* (æce) are large and very painful, unless timely remedied, there is hazard of Inflammation, Abscesses and Fistulas as has happened to several I could mention, besides, there is not only this hazard to the parts affected, but the neighbouring parts also suffer, whence frequently Suppression of Urine, violent Tenesmus, and abortion, as I lately had occasion to see in a Lady that was affected in the eighth month of her Pregnancy —

The *Verrucales* are esteemed the worst to cure, the *Morales* the next, and the *Uvales* the easiest.

The Indications of Cure are taken from the Causes in which the disease depends; If from a Plethora, by Evacuations, if from a Cacochymia, the Liquids must be corrected; if from an Obstruction in, or pressure on these vessels, that must be removed; if from a weakness of the vessels, they must be strengthened, & then the Symptoms that supervene must be corrected.

But to be more particular, we shall begin with the Blind Sort. In this as well as the other we must keep the Belly open by dissolving what Fæces are already contained in the Intestines, by injecting emollient Glysters, by giving

giving the Patient only such Victuals as are of easy Digestion, & afford a small quantity of Faeces, and frequently administering Laxative Medicines, carefully avoiding any gross heavy Meals, or any thing either in diet or by way of Medicine that is astringent; for by these the Piles may be forced down even in a sound Body and therefore in this Case must be very pernicious.

If the Patient can easily bear it, we diminish the quantity of Blood by Venesection, if the Piles are small and without pain we endeavour by astringents to cure them; such as Decoctions of the Cort. Granator. Flor. Ros. rubr. Herb. Plantag. &c. The Sigil. Solomon. and Saphirei this are extolled as grand Specifics in this disease when taken by the Mouth. Bartholine tells us of a man cured by eating Gara Granatorum recentia. Nay, a great many authors pretend to cure, or prevent this disease by Amulets of Red Fabaria recent — When the Tumour is external, some cry up the Ungt. Populion or Ungt. de alth. with Pulv. Suber. ust. as a grand Specific to apply to the dilated Vein, and certainly it is a very good Medicine as I have often experienced in such Cases. If these Hemorrhoids are

32 are attended with pain and inflammation, plentiful
Blood: letting is necessary, and till once these symptoms are
removed, Emollients and Lenients are to be used, and I
have seen very good Success from the Use of the Balneum
Vaporis of the Decoction of Althaea, Chamomile, Mer-
curial. Flor. Samburg. with SpA Vin. and after this the
common Anodyne and emollient Cataplasms —

When the Hemorrhoids are so large that there are no
hopes they ever will contract themselves, to their former
dimensions, we are not to hazard an Abscess or Fistula
by the too long Stagnation of the Matter within them, but
ought to let it out by opening the Tumour with a
Lancet or snipping them off with Scissors, or else destroy
them by cutting them around, or by applying the rectal
Caustery. This last Method the Ancients used as we learn
from Hippocr. de ratione Victus in morbis acutis, et de
Hæmorrhoidibus. and Celsus Lib. 7. Cap. 30. Paragr. 3.
But we must be cautious in doing it, lest we create too
much pain and bring on Inflammations, as Purman Chirur-
gicus. tells us happened to a Patient he afterwards had
difficulty to cure. After it is opened we heal it as a com-
mon Ulcer, with Digestives, Incarnatives and Epulotics —
When

When the Hemorrhoids are open, unless the flux of Blood is immoderate, and weakens the Patient too much, we must not be too hasty in stopping it, in case of a considerable Hemorrhage. The Cure consists in preventing the ill Accidents that sometimes follow the repressing of the Flux, by Blood letting and internal Medicines appropriated to the State of the Patient. In this, Hippocrates, in the place last cited, gives excellent rational directions; Then afterwards stop the Flooding by the Application of Astringents. Consult Wiseman Lib. 8. Cap. 1. where are different Observations on all the Methods of Cure mentioned. We come now to these Tumours which depend upon the Extravasation of the Liquids out of the larger Arteries & Veins.

False Aneurism.

When a large Artery is wounded or by some neighbouring Ulcer corroded, so that the Blood escapes out of it, when there is no external Orifice in the Teguments, by which the Blood may have liberty to get out, it insinuates itself among all the surrounding parts, and forms one of the most dangerous Tumours, which we call a Bastard Aneurism.

This

34 This I had occasion to discourse pretty fully of before, and therefore shall not trouble you with any detail of it just now —

After the same manner if a Vein is opened such another Tumour may arise by the consequence, this is what is commonly called an

Ecchymosis.

Which also may be produced by a Fall, Blow, or other Accident, when several of the small Vessels ^{below} of the Serpiments may be broke.

The Ecchymosis is soon enough discovered by knowing if any of the Causes capable enough to produce it have preceded, and the discovering of the parts where it is contained, by their changing into yellow red green or blue Colour, and very frequently the remarkable rising of the part, tho' sometimes the Increase of the magnitude of the part is not so observable.

This Sort of Tumour is not dangerous, unless very considerable, nor is the Cure very difficult. If 'tis small, we may endeavour as soon as we can to disperse it, by Repelling and Resolvent Medicines, or such as constrict the
broken

broken Vessels, and hinder the further Effusion of the 95.
Liquids which at the same time they attenuate those
already extravasated —

All of you certainly know the common method of ap-
plying cold water and Vinegar to a contused part im-
mediately upon the Bruise, and that of dipping a
Compress into Water, after a Thrombus, i.e. after too
small an Orifice in Blood letting; and to these may be
mixt some of the common Astringents, which we have
frequently mentioned, by which a Flux of Liquids is
prevented, then endeavour to resolve by Fomentations,
made of the Decoction of Flor. Chamom. Melilot. Sangu.
Herb. Alth. Absynth. in vin. and water, or Frictions
with SpA Vin. Camph. and Vinegar. Afterwards ap-
ply Cataplasms of the powders of these Herbs, of
Crumbs of bread, Claret, or Lees of Wine; Some cry
up Bran and stale Urine; The design of all these ap-
plications is to attenuate the extravasated Liquids
and strengthen the Vessels, so that the Liquids may ei-
ther be sent out by the pores of the skin, or resumed into
the mass of blood by the open mouths of the Veins —
If

36 If the Echyrosis has been considerable, plentiful
bleeding is one of the most effectual Remedies if the
Patient can bear it. When the Collection of blood is so
great that there is no hopes of curing the Echyrosis,
by this method, then we are obliged to lay the Tumour
open, and evacuate the blood by the Aperture, lest by
its Corruption a deep Abscess should be formed, or by its
Compression a Gangrene be brought on. In this Case
its to be treated the same way as a bastard Aneurism,
from which it differs only in degree, not being of near
so ill Consequence —

Phlegmon

After these Tumours which happen in such Vessels
as we can observe, which are these immediately treated
of, we come next to examine the Tumours of the
smaller Vessels, where tho' we cannot so plainly point
out each particular one, yet we are able to distin-
guish their particular sorts and Classes of Vessels they
suffer. The first sort of these, (according to the method
we proposed to follow when on Tumours in general) will
be

be the Phlegmon, or Inflammation which entirely^{38.}
signifies any burning heat. When applied to Tumours,
it either in a large Sense denotes any Tumour from the
distension of the small Vessels by the red Globules of
Blood, attended with a rapid motion of the Liquids, or,
Lastly, the denomination of a Phlegmon is applied to
a particular Species of inflammatory Tumours —
There is a Distinction here pretty frequent among Sur-
geons, tho' not taken notice of by Authors, viz Inflam-
mation they take in a large Sense, Phlegmon they
take in a more limited. Which distinction I shall
follow, tho' I cannot say, I am sufficiently war-
ranted to do so, yet it will be very necessary to avoid
confounding of Terms. —

According to a strict method I should now proceed
to the history of Inflammation, but as this is much out
of the road of Surgical Treatises, and that the Pro-
gnosis and Indications of a Phlegmon are the same
with it, I shall wave it and go on with the Phlegmon,
whose description is, A red hard and painful Tumour
attended with Fever and Thirst, occasioned by an Retention
of

38 of the small Vessels, in which the red globules of Blood circulate, or may be contained —

That a Tumour may be thus produced is plain enough, since the Liquids are constantly driven on towards the obstructed parts, and cannot there find a passage they will distend the Vessels, which distension we call a Tumour. —

No wonder that it is red, seeing the Liquor contained in these Vessels is entirely so; by the violent distension of the Vessels and compaction of the Liquids and Solids it must feel hard and not yield to the Touch. The Fibres of the Solids are stretched far beyond their natural Tone and near to breaking, hence an acute pungent pain must necessarily be felt —

From the Attrition of our Solids and Liquids the heat our Bodies depends; but in this case the Liquids are violently thrust against the Solids, while the Fibres by their natural contractile force, endeavour to resist any distension beyond their natural Tone, hence a violent Attritus, consequently the heat in that part must be much increased by the resistance of the
Extremities

Extremities of the obstructed Arteries, the Dilatation³⁹
of their Sides at every Systole of the Heart will be
greater and more conspicuous, hence a sensible pul-
sation of the Tumour.

Upon the Obstruction or stopping of any number of
our Vessels, the Velocity of our Liquids must be in-
creased thro' the rest, as Bellini and Spolletti have
demonstrated. Now besides this, in the present Case,
the pain serves as a Stimulus to make the Solids
contract more violently, and therefore to increase the
rapid motion of the Liquids. From which two
Cases the Rise of the Fever and its Consequences
are evident. — The Case on which these Phae-
nomena depend, you see, is an Obstruction, which
has already been accounted for, when upon Tumours
in general.

The Prognosis here is to be taken 1st from the
Tumour itself, whether large or small, deep or su-
perficial, attended with the Symptoms in a violent
or moderate degree, and the Time and State of the
Tumour when you are called.

2^{dly} From the place where this Malady is, whether in the internal or external parts, or near those that are necessary for Life, or those that are only Subservient to the Conveniences of Life, or in a part that is extremely sensible, & whose parts if distended are not easily supplied as when near to large Tendons, Nerves, or Blood Vessels, or when in such places as may supply a flux of Humours, as the Glands or Articulations, or in others that are not of such a nature —

3^{dly} From the Constitution, Age, Sex &c of the Patient.

4^{thly} From the Cause of the Obstruction, whether merely Topical, i.e. only in the place affected, or if it is more general &c.

The different manners by which an Inflammation may terminate are,

1st By Resolution, when the obstructed matter is not so firmly impacted but that it may be made still fit for Circulation, and by due treatment are actually forced from these Vessels in which they stagnated

stagnated, without any Lesion of the Vessels. This 41.
we know is the case when all the Symptoms gradual-
ly abate & gently go off.

2^d When the Inflammation of the Liquids is so strong
that they cannot be thus forced, but by the accu-
mulation of the stagnating Liquids and vast dis-
tension of the Vessels, these gradually give way,
and are broke, and with the contained fluids form
white thick Liquor called Pus, then they are said to
suppurate, which we know by the constant Increase
of all the Symptoms, especially the pain, till at last
the Tumour subsides, the pain abates, and the Swell-
ing seems soft and fluctuating —

3^d If the Obstruction is very great and the Symp-
toms extremely violent, the Circulation comes to be
entirely stoppt, in the inflamed part, the Vessels
are destroyed, and the Liquids very soon corrupt, con-
sequently so far it is a dead Mass, the pain & heat
suddenly cease, the Colour of the Tumour changes to-
wards black from the great quantity of coagulated
Blood, the thin parts of the corrupted Mass separate
from —

from the groffer, and endeavouring to make their way outwards cannot force thro' the Epidermis, but raises it up in form of Water Blisters, then the inflammation is said to be gangren'd, which mortification if it penetrates into the Bone, degenerates into a Sphacelus.

4^{thly} Sometimes when an inflammation happens in a glandular part where the Obstruction is in the Follicles of the Glands, and it is attempted to be cured by diminishing the Impetus of the Liquors and strong contraction of the Vessels, without endeavouring the resolution of the stagnated matter, the thinner parts are expressed while the groffer turn still more compacted and do not distend the Vessels so much, so that now the succeeding Liquors are not propelled with such force as to create pain, therefore a hard indolent Tumour will remain, which we call a Schirrus.

Now from these a rational Surgeon may easily enough be able to judge what the Events will be in the several Cases; For example, he must see, that a well blooded young man labouring under a small superficial

superficial Phlegmon, in the common Teguments, par 43.
from any of these dangerous places mentioned, and
called to him at the first appearance of the Tumour
will be sooner, more easily, and with less danger
cured than if it was a large inflammation, near
these parts that are necessary for life, which was
already beginning to suppurate, and gangrene, & the
Patient an old Catarrhmic decayed person —

It is a general Rule that we endeavour to cure
Phlegmons by Resolution, which is by far the most
compendious method, & by much the safest, except in these
following Cases —

If this Tumour appears to be a critical discharge, i.e.
when the Patient was labouring under some worse Ma-
lady, and Nature takes these ways of throwing out the
matter that occasioned the disease: Witness, the Parotids
in pestilential Fevers, and Bubbles in the Lues Venerea,
or Subaxillary Tumours in Children, when, as the com-
mon saying is, they are full of Humours. In these
and the like cases by attempting the resolution of such
Tumours, more harm than Service may be done, whereas
by

44. by allowing them to suppurate, other considerable
maladies may be cured. —

This all Authors who treat of the Plague confirm,
who all agree that the inflammatory Tumours which
frequently then happen, should be brought as soon as
possible to suppurate, in order to save the Patient. I
have seen all the Pocky matter evacuated by a Buboe,
and other times by endeavouring to disuss one of
these Venereal Tumours, the Testicles have swelled,
the Patient has been racked with violent pains all
over his Body. — A Girl nine years old here in
Down, was much troubled with sore eyes for a conside-
rable time, her head turned scabbed, all the little glands
about her neck swelled, and felt very hard, at length
on the back part of her Humerus a Phlegmon appeared,
suppurated, and was kept open for some time, by
which evacuation all the former symptoms were re-
moved. The mother of the Child at length turns im-
patient, will have it cicatrized at any rate: Against
my Inclination I was obliged to humour her, but in
a little time was obliged to renew the evacuation by a
Fontanel

Fontanel, because of the return of the former 45
Symptoms.

2^d If there are already any signs of a Suppuration begun in the Tumour, the Resolution is not to be attempted for either it is labour in vain; or else you hazard the Resorption of the formed Pus into the Mass of Blood; consequently it is lodged in some part that is necessary for life. —

Now, that we know the exceptions against the first method of curing Phlegmons, we may proceed to the methods of Cure, which are, To remove the Cause, by which the further progress of the Tumour will be prevented, and to take away the Obstruction already formed. If the Cause is external, such as Bandages, Swaths, the pressure of heavy bodies, sharp substances causing pain, and Applications, and too much heat or Cold &c. 'Tis soon discovered and as soon removed. If 'tis internal but Topical, as the Extremities of luxated bones, the reduction of these bones answers that Intention; when the Cause is from the Mass of our Liquids, it must either be from
the

46 the too great quantity, which by Evacuation is diminished, or from the too great velocity from some Stimulus or violent Contraction of the Solids, as by too violent motions, furious Passions, drinking of spiritous Liquors, and Medicines given internally, or from a mala Crasis of these Liquids themselves, which is more the Physician's business to correct than the Surgeon's. —

In order to answer the second Intention of Cure, viz. To take away the Obstruction already formed, you would remember that the principal reason why it continues is the Impetus of the succeeding Liquors on the obstructed part, while the distended Vessels cannot recover themselves; for if the Impetus was taken away the Arterys would either drive the stagnating Blood back again into their proper Channels, or else the little Globules would be resolved still into smaller, and consequently might pass forward into the corresponding Veins. The most effectual way for diminishing the Impetus is by Evacuation & astruc management of the Nonnaturals; the Evacuations are
Blood

47
Blood letting and gentle Purgatives, which, as also
the Nonnaturals, we had occasion to be pretty large
upon in our Treatise of Wounds, and therefore shall
not now repeat the Directions given. The internal
Medicines ought to be Diluents and Attenuants, but
am afraid that to insist on these would be thought on
as roaching on a province that does not so properly be-
long to us. The external topical Applications must
be regulated according to the State in which we find
the Tumour; if it is but beginning to appear and not
well formed, Repellents should be used, which are all
of the Astringent Class, and therefore needless to be
now repeated; but we should not too hastily apply
the strongest of these, for tho' the moderate by constrict-
ing the Vessels, may hinder their too great Distension,
or Flux of Humours thither, and help to drive out the
obstructed matter which is not yet very much im-
packed, yet if the Arteries are so suddenly & violently
constricted, the obstruction may thereby be more confirm-
ed. 'Tis true, that in some Cases where there is reason to
suspect an inflammation may happen in some certain
place

48. place; for example, upon a blow or strain before the part begin to swell or turn red, some of the stronger Repellents may be used.

If the Tumour is some way advanced & has been for any time continued, we must have recourse to resolvent Applications, for the matter is now so firmly compacted, that the Constriction of the Vessels alone are not sufficient to drive it out, but would rather fix it surer. Now, the nature of these Resolvents or, as some call them, Discutients, is, to dilute, by mixing their thinner parts with our Liquids, while at the same time they break the attraction of the little Globules, and make them fitter either for passing thro' these vessels, in which they could not circulate before, or for escaping thro' the Pores of the Skin.

These Discutient Medicines may either be made use of in form of Cataplasms, Fomentations, or Plaisters. The Materials they consist of are, Absynth. Menth. Melilot. Rut. Scord. Chamom. Puleg. Hyssop. Marrub. alb. Rad. alth. Brion. Iros. Gum. Ammon. Boell. Galban. Nitr. Sulph. Calor. Out of these and such like

like infinite variety of Formulas that might be 49
prescribed, I shall mention an example or two. —

R, Fol. Malv. alth. a M. l. Summit. Absynth.
Flor. Chamom. Melilot. Sambuc. a M ss. Decoq in
aq. Fontan. Lib vi ad Lib iv Colatur. add. Aceti
optim. ℥ij Sal. Nitr. ℥ss. Utatur pro foku. —

R, Rad. Alth. Brion. recent. a ℥ss. decoq. in
Serev. tenui ad molletiem. In Mortario ad pulp. ad.
regantur et add. Farin. hord. Sem. Foenugr. a ℥i ss
Dulc. Flor. Chamom. Sambuc. a ℥i Gum Galban.
— Ammon. (in vitell. ovi solut) a ℥ij M um q. s.
Fokus preecedentis f. Cataplasma. —

Some cry up Urtica acetusa as an admirable Medicine,
when applied with Sulfur Tritici, which I have seen
successful, but the ungrateful Smell is nauseous to
the Patient. Most Authors prescribe Oils, unctuous
Medicines and Plaisters, and this practice is still in
the French Hospitals, but such Medicines do not
answer the Intention of Resolution so well, as being
less capable of mixing with our Liquids; and then this
(for they do mischief) obstructing the pores of the Skin,
and

50 preventing the insensible Transpiration which should rather be promoted. Hence people that are brought into these hospitals labouring under an Inflammation are seldom cured by Resolution, but are obliged to undergo the tedious Cure of Suppuration, as I have in a vast many instances seen —

I might, after the Example of our learned Countryman Dr. Cheyne in his new Theory of Fevers, launch out into a large field to demonstrate the mischiefs that very strong Resolvents might create, particularly here destructive that almost universal Deobstruent and Resolvent, mercury, would be in this Case; but I think its a sufficient warning against the use of it, that all the authors are silent about the use of it. —

We come now to an Inflammation at its height, i.e. when the Tumour seems to be at a Stand, and the Symptoms increase no more, at which time the Vessels are generally extended extremely; the Obstructed Matter is much impacted, the Tumour is hardest, and the pain is greatest. In this Case again the Indications of Cure alter; for, at this time Resolvents that

51.
that have a certain Stimulus, or Repellents that
contract the Vessels strongly, would but increase the
Symptoms, render the contained fluids more acid, and
then the tender Vessels break, or at most would only
assist the Evacuation of the thinner parts of the Liquids,
consequently render the Tumour harder and much worse
to cure, therefore Lenients and Emollients are what
ought now to be applied. For these, by relaxing the
Fibres, and removing the Rigidity give the grosser flu-
ids an Opportunity to resolve themselves into thinner,
by furnishing some of their own thin parts to dilute
the Liquids, hence necessarily an Abatement of the
Pain must follow; which pain is one great occasion
of the general increased Velocity of our Liquids. These
of this Class most ordinarily used are Alth. Malv.
Mecur. flor. Sambuc. Farin. Roro. aven. Secale,
Sem. Lini. Fenugr. mic. pan. alb. with Lac. Vitell.
Ovor. Ag. Fontan. — The Formulas of these are so
common that 'tis idle to mention them. Sure all of you
are well enough acquainted with the vulgar Applications
of Milk and Bread, Salts pottage with the Yolk of an
Egg

54 Egg, Farina, Sem. Lini. &c. — When once the Tumour begins to yield and the Symptoms to abate, then Resolvents become again useful; When it is near going off Repellents succeed —

I have mentioned these several sorts of Medicines as separately applied, yet your Reason will soon discover, that a mixture of them will often be necessary, and by considering the condition, Repellents with Resolvents with Lenients &c and e contra, are to be mixed —

After the Tumour is thus removed, it will not be amiss to use Means to prevent its return to the Arm or some other part. If the fault lies in the weakness of that part more than any other, Corroboratives, which are mostly astringent, should be kept on it for some time. If too great a quantity of blood occasions the Inflammation, that is to be prevented by Evacuations & spare Diet &c. according to the different Causes of the disease, of which we have already discoursed —

If the Phlegmon appears to be a critical Evacuation or already shews itself to suppurate, you may remember we warned you against attempting this method of Resolution

Resolution, but rather to forward the Suppuration, which is nothing but a gentle and gradual breaking of the obstructed Canals, the effusion of some of their Liquors, and the Concoction of these two mixt together by the heat of the Body, into that thick white Liquor, Pus, so generally known. The manner of doing this must be, to keep the Velocity of the Liquors moderately increased, particularly in the Tumour, to add a Stimulus to the Vessels, while at the same time we prevent any of the thinner fluids escaping by the pores of the skin: for thus the Vessels will at length be so much distended that they burst, and an equal mixture of the broken Vessels and extravasated fluids made, therefore unless the Circulation is extremely rapid, so as to endanger the life of the Patient, or a Gangrene in the Tumour, we are not by evacuation to diminish the Velocity of the Liquors. —

The Topical Applications are well enough known by the name of Suppuratives, such as Rad. Alth. Silior. alb. Cepar. asar. Ficus. Farin. Sem. Lini. Fungus. made into a Cataplasm with any Oils or
oily

54. oily Substances, such as Ol. Chamomil. Olivar. veter. long.
Basiliæ. Dialthea Empl. Diachyl. cum Gum. or D.
Mucilag. are good enough Suppuratives of themselves.
Nay, frequently when the Tumour is superficial and
inclined to suppurate of itself, or if it is very hard,
the common Lenients with these are best Suppura-
tives. —

Now while the Suppuration is going on, the Patient
feels an acute pungent pain in the part, which is
plainly owing to the vast overstretching of the vessels
before they are gradually broke. —

'Tis a general Rule, that we should endeavour by
the Use of these Medicines to suppurate all the irre-
soluble parts of the Phlegmon, before we give the Exit
to the Pus, if otherwise we have a great part un-
suppurated, the Cure is much prolonged, and rendered
more difficult, because Nature's Balance is evacuated,
and the Air gets admission, so that it is with great dif-
ficulty digested. However, there are some Exceptions to
this Rule; if the Tumour appears a Crisis of some
dangerous disease, where Nature seems to have taken
thes

53.
this Method of discharging herself of the morbid
matter, and the Suppuration is likely to go on but
slowly, while the Patient for want of this discharge
is in imminent danger as in Plague and Rocky Tu-
mours, we are not to wait till the Abscess is ripe, but
must lay open before and force the Evacuation as soon
as possible; The signs by which we know the Abscess
is ripe or fully suppurated are, the softness of the part,
to the Touch, as necessarily follows from the Change
of the Solid Vessels into a fluid, the fluctuation of the
matter under the Finger, the whiteness & pointed
head of the Tumour, from the weakness of the Teg-
ments and white Pus appearing thro' them. But
this is only the Supposition that the Phlegmon is
near the Surface of our Bodies, otherwise if it has
been internally or very deep, these signs are in
vain expected; When the obstructed vessels are once
broke the Pain must cease or abate, and instead of
it a Weight is found in the part from the pressure of
the Pus at the same time the Circulation is again
free

56 free and uninterrupted in the neighbouring sound Vessels. Now, both pain and obstruction being removed, their consequence, viz the Increased Velocity of our Liquors. i.e the Fever must cease; and its concomitant, Heat, must abate, in short all the Symptoms of Inflammation are diminished, or entirely go off.

As soon as thus we discover the Suppuration to be perfected, we are to make way for the evacuation of the Pus, for if we pretend to wait till the Pus force its way onward thro' the Teguments, as the most part of old women are clear for doing, and some imitate them, we run a great many hazards, and very sure Inconveniences follow, for even upon the most favourable Event that it soon break outward, yet the Orifice is so small, that the matter cannot discharge itself, and we are very often under the necessity afterwards of enlarging the Aperture to make a speedy cure. But then if the Matter lies any thing deep, before it reaches the common Teguments the heat of the Body will turn it acid, it insinuates itself into the neighbouring parts, destroys all about, produces Sinous.

57.
Sinuous Ulcers, Fistulae, Carious bones, runs into
some of the three large Cavities, is perhaps absorbed,
into the Mass of Blood, brings on hectic Fevers, Phthisi-
sis Pulmonalis, Ulcer of the Lungs &c. Hildan Cent 1.
Obs. 39 has the history of a girl, who by this very
delay of not opening an Abscess when fully ripe,
but waiting till it broke of itself, was thrown into
a violent fever and died in a few days. And in Cent. 2.
Obs. 34. you'll see the Case of a Woman, who was
killed by her friends not allowing Hildanus to open
an Abscess, betwixt the Peritonaeum and Muscles of
the Abdomen, the Matter having soon after made
its way into the Cavity. And in the Observation im-
mediately following you may read of one in the same
Circumstances, who by allowing the Aperture to
be made, was cured. Bonet. Anatom. Pract. Lib 4.
Sect. 2. Obs. 10. 57. tells us of the Bishop of Co-
logne, who fell into a quartan Ague after a con-
tinued Fever, a Collection of matter appeared near
the left Scapula, he would use no Physician's nor
Surgeon's Advice, at length a Tumour appeared on the
left

58. left Side of the Perineum, out of which a vast quantity of putrid stinking matter was evacuated, that wasted him day by day. After his death a huge Collection of that kind of Stuff was found among the Abdominal Muscles. Hildan Obs. 25. 54 relates the Case of a young woman, who, by the indifferent management of a Paronychia, by some Secret-monger Woman Doctrix, was obliged to have the Finger cut off, all the soft parts being gangrened, and the bones carious. —

The Methods proposed for opening Imposthumes are, by cutting Instruments or Caustics; the first of these is preferable, doing the business more quickly & surely. In the Incision we are always to have a regard to the Course of the Fibres of the Muscles below in cut, being parallel to them, especially if the Abscess is deeper than the common Teguments, and then we are to shun Tendons, nerves, or large Blood vessels. As to the Tumour itself, the Aperture is made in the most prominent, then, and depending part, for thus you'll soonest come at the matter, with greatest ease, cut it

it open, and the Matter most freely discharges. 59.
When we are about to make an Incision, with
one hand we press the Sides of the Tumour, so as
to make that part where we design to cut as pro-
minent and firm as possible, in order to be in less
hazard of hurting any parts below, and to give
the greater advantage to our Instruments in cut-
ting; Then with a Lancet or some such cutting
Instrument, which may be of bigness in proportion
to the Largeness of the Tumour, we make one sin-
gle longitudinal Incision thro' the Segments by
thrusting the Lancet into the Cavity of the Abscess,
then running it along as far as we design the
Aperture should be in length, or else at once we
pierce from the one side to the other, then raising
the Lancet, cut all that is above it, and gently
express the Pus: This Orifice will serve well enough
for introducing of Medicines and evacuating the
matter afterwards, if 'tis small, but if the Abscess
be large, and there be a considerable Cavity after the
former Incision has been made, we must cut the
whole

60 whole length of the Tumour. The French Surgeons, particularly in the Hospitals, with a pair of Scissars snip off all the loose lips, which cover the Cavity, by which the Matter more freely discharges itself, and you can see better into the Abscess, and its extent, so as to be sure that there is no Collection of Matter, and Medicines may be introduced. This practice I have seen followed with Success, nay, this way it seldom misfires sooner to cure than when the Lips are left on —

If the Abscess is very prominent, and at the same time very large, we may use the Second Method of Incision, which is, after the Tumour by pressure is raised as big as we can, to cut off at once with a pair of Scissars, Lancet or Bistoury the whole external part of the Tumour —

If the Patient or Relations out of a senseless fear of Chirurgial Instruments refuse to let the Abscess be thus laid open, we must then do it by Caustic. The manner of which application is thus, Spread a piece of sticking plaster (no matter which) on a piece of Linnen or Leather, cut a hole in the midst of

of this, as long as you design the Aperture of the 61.
Abscess should be, which is in proportion to its large-
ness, then apply this cut plaister to the Tumour.
Let the whole answer to the most prominent part,
and the thinnest and most depending: Let the plai-
ster be clapt as close as it can be to the Circum-
ference, after wetting with your Spittle or a drop of
Water the middle uncovered part of the Tumour,
upon which lay a piece of common Caustic or the
Lap. Septic. Pharmac. Boil. which is to be in
bulk as the Orifice is large and the Teguments
thick, cover all over with a spread plaister; this
keeps the Caustic from falling off, the wetting of
the Skin sooner dissolves the Stone and the under
sticking plaister hinders it from spreading fur-
ther than you would have it. allow it thus to re-
main till you judge a sufficient Eschar is made,
which is according to the quantity and quality
of the Caustic, which is commonly from half an
hour to two hours; after this remove the Caustic
and other dressings, and apply a plaister covered
with

62 with Basilicon, or some such unctuous Stuff on the Eschar, to promote its separation by suppuration, ring its edges, and a Plaister over it to keep it on, renew the dressing every day till the Eschar fall off, or become so loose, that it be easily brought away with the Forceps. If this appears to be too tedious, with a History or Lancet scarify its edges, which makes it separate sooner. When the Eschar falls away, if the Abscess be opened, it is much the same when done by Incision; but very frequently it happens when the Teguments are of a considerable thickness, that even after the Application of the Caustic we are obliged to have recourse to Incision, because the Eschar is not so deep as to reach the Cavity of the Abscess—

Now which soever of these ways the Tumour is opened, we immediately endeavour to evacuate as much of the Pus as we can by placing the member in a convenient Situation, and by gently pressing the Circumference of the Tumour, we should not however be over anxious in piercing the Ulcer of it, and

and thereby put the Patient to a great deal of ^{63.}
pain, by squeezing it very hard, or raking into it
with mounted Probe or false Tent, for thus we may
bring on a new Inflammation, we certainly destroy
what nourishes the small tender vessels, and carry
off the best defence they could have against the Inju-
ries of the Air, and best Balm for a speedy Cure.

Authors generally direct us when the Abscess is very
large with a vast quantity of matter in it, not to
allow all the Pus to be evacuated at once, for fear
the Patient should fall into a Syncope or Deliqui-
um Animi, and certainly this may very well hap-
pen if the Abscess is near any large Vessels, so
as to compress them, and hinder a free Circulation,
in them, for now the Compression being suddenly &
entirely taken off, a much greater quantity of blood
will rush into these Vessels, than for some time
before had circulated in them, consequently a smaller
quantity of blood is sent to the other parts of the
Body, among the rest the Brain is not sufficiently
supplied. therefore less of the *Liquor Nervorum* is
sent

64 sent out by the Nerves, consequently faintings must follow. Wherefore Authors, I say, generally order the Matter to be let out in small quantities, and at different times; tho' if it is in a part that will allow of tight Bandage I see no necessity for this Caution, for by Compression during the Evacuation, and the bandage after, the succeeding mischief may be prevented, while at the same time we run no risque of Sinuses, carious bones, Phthisies or Fevers &c. by the too long stay of the Matter. When the Pus is all let out, the Cure is the same as of a Wound by Symparctosis, and I'm persuaded if you recollect what was said upon that Subject, you'll find that whole Classes of Ulcers, which are a Solution of Continuity by some internal corroding cause, may very nearly be reduced thither: And to convince you of it, I shall run thro' the most common distinguished Ulcers, and at the same time mention the several analogous Causes we formerly mentioned.

A simple, plain, equal Ulcer, by which is meant

meant a Solution of Continuity by Erosion, with, 67.
out any concomitant Symptoms or diseases, and
without loss of Substance, differs nothing from such
an Wound, when once it has begun to suppurate.
A simple hollow Ulcer is the same with a simple
hollow wound without loss of Substance. The same
Rules serve for curing fœdæ, putrid, sanious Ul-
cers, or these with proud luxuriant flesh, that
have been laid down for wounds in such a Condition.

If the Ulcer is attended with *Cachymia* or In-
temperies, 'tis more the Physician's than Surgeon's
business to correct that ill habit of body, as was
expresly remarked in the history of wounds.

Ulceræ Phagidenica or *Depascentia* or *Moma*,
all which signifie corrosive malignant Ulcers,
where the Matter destroys the neighbouring parts,
are only Consequences of the Intemperies. If these
have been of long continuance, some are pleased
to call them *Annua*, others again stile them *Chronica*,
or requiring *Chiron* or the Princeps *Chirurgus* to
cure them. Others name them *Telephica*, from *Telephus*
who

86. who endeavouring to stop the Grecian passage into Troy was wounded by Achilles, his wound degenerated into such an Ulcer which continued a considerable time, but at last was cured with the rust of the same Spear that wounded him.

Directions have been given for healing wounds with small orifices and large Cavities, and these that are in a depending part with their Orifices uppermost, and the Fundus inferior, which may serve for the Sinous Ulcers.

The manner of cicatrizing a Wound and the History of Epulotic Medicines then given are sufficient for understanding the Ulcera Decrepulotica, which entirely depend upon Fluxion from Intemperies —

If you suppose an Ulcer attended with pain the nature and causes of that Symptom with the different methods of removing it were pretty narrowly considered.

Now the Cure of an Ulcer with a carious Bone depends upon curing the Caries, which belongs to the diseases of the Bones.

When an Ulcer or Wound, in the Summer Time especially

especially, is exposed to the Air, Flies and other Insects deposite their Eggs in them, which Eggs soon grow to Maggots or little Worms, whence the name of Ulcerus or Ulcerus Verminosum. The Removal of those extraneous Bodies, and preventing any more getting in, reduces the Ulcers to some of the former Species.

If Varices accompany Ulcers there they are called Varicosa. I do only the history of these swellings in the Veins to the common Directions in Ulcers, and the Disease is understood.

There is a Species of Wounds degenerating into Ulcers, which we were not so particular about, and that is, when the Sides turn Callous. Now, because the hollow Sinous sort comprehends the plain sort, and we are very often obliged to reduce the first sort to the last Class, I shall only examine the Sinous kind, which are known by the name of Fistulae.

Fistula.

By a Fistula here we mean a Sinous Callous Ulcer, and which I judge to be thus formed. Upon a Wound or Abscess, that matter which should be evacuated is pent up, either

68 either for want of an Orifice, or a proper one to discharge itself at, or by the Sides of the Orifice uniting again; or by some Solid Substance crammed into the Orifice, consequently this matter must turn acrid, and insinuate itself between the neighbouring parts, or by its acrimony destroys them, that is, the wound or Abscess becomes Sinous, or perhaps by an wounding Instrument the Wound is already formed. After this the Callosity may be induced by some one or other of these Causes, the acrid matter within the Sinus continually stimulating the Vessels, yet not able to destroy them, makes these Vessels constrict themselves and diminish their Diameter, till by the continuance of the same Cause, the Sides collapse, the Impulse of the circulating fluids not being able to force them open, and soon after they must coalesce or grow together, they therefore remain no longer Vessels, but become that solid Substance which we call a Callus. The same Effect will follow upon a Compression of any hard Substance, introduced into the Sinus, such as Tents, Doricks &c. Spiritous Medicines constrict our Solids & coagulate our

our Liquids, hence by continuing some time the use, 69.
of such, a Callus must be formed. Astringents and
Absorbents have pretty near the same effect, therefore
may attended with the same consequences. If the
Air have access into the Sinus, since by its coldness
and gravity it acts much after the same fashion,
it will easily produce the like effect.

The difference of Fistula is taken from the largeness,
number, figure, & Situation; for some are superficial,
others deep, some long, short others; Some have only
one Orifice and one Cavity, others have several Ori-
fices and Cavities, some affect only the external Te-
guments, others penetrate into the Muscles, Nerves,
Veins, Arterys, Bones of ~~the~~ some of the Cavities or
Viscera there. —

The way how we come to discover when an Ulcer is
Fistulous is, by the Eye, Hand, or Probe. If the Ori-
fice is large, we may observe the Cavity within it,
but this very seldom happens, for generally the Ori-
fice is very small, therefore by feeling with our Fin-
gers a hardness where the Fistula lies, we discover
its

70 its progress, tho' the surest way is to introduce the Probe, which goes in without any pain to the Patient, and we find a greater than ordinary resistance when we strike against its sides. If there is only one simple Fistula and that straight, the common Silver or Steel Probe discovers its whole extent; but if there are any turnings, we must use some flexible Probe, such as a small piece of Whale bone, or Silver made very flexible or a Wax Candle. We know there is more than one by the same means: Or else when we cannot get the Probe introduced, by observing the quantity of matter that comes out, especially after shutting up the external Orifice for some time, or else by the matter coming away (after it seemed to be all evacuated) upon the Patient changing his Situation, we have reason to conclude there is more than one sinus. When we observe two Orifices, the trial we make for knowing if they belong to one or several Fistulas is, to throw in by help of a Syringe into one Orifice, if it returns by all the rest, their Communication shews they all belong to one fistula, et e contra. —

Now

Now, the same Rules that served for distinguishing 7^l. wounds in general, will likewise serve for discovering the different parts that a Fistula affects or runs near to: Since these Rules have all been given already, I shall not trouble you with a repetition.

The Prognosis is to be drawn the same way as in wounds, or from the nature of the Fistula itself, the Constitution of the Patient, and the parts it affects. The only difference betwixt them is, that Wounds bring more immediate Danger, but are sooner cured, whereas as Fistulae much more slowly destroy the Patient, and when curable take much longer time, and prove a troublesome tedious work. The Cure must certainly consist in removing the callus; without this no reunion can ever be made, and then we dress it like a common Ulcer.

Now, the Callus may be removed either with or without cutting it open; The Cases in which we endeavour the Cure of the Fistula without cutting it open are
1st When the Orifice is so large that we can have easy Access to it in applying Medicines.

72. 2^dly When there is evident danger of laying it open by cutting parts, whose lesion would either endanger the Patient's life, or bring on a greater Inconvenience than the Fistula itself was, —

3^dly When the Patient has not Courage enough to allow of cutting —

The method we take for curing of Fistula without cutting is, by introducing Escharotick corrosive Medicines capable of destroying the Callus; yet we are to be cautious of using those that are too violent, lest by the pain they create, and the destruction they make, we raise more mischief than we can repair. Lists of such Medicines in their several Classes have already been given, such as, *Præcip. rubr. Alum. ust. Vit. Roman. Vit. alb. Arugo. Lap. Caust. &c.* which may be introduced in solid or liquid forms, wth proper Vehicles. If the external Orifice is too small it must be enlarged by cutting, or dilated with Spunge Tent. As soon as the Callus begins to yield, strong Digestives must be mixt with the Escharotics. After the Callus is once well separated, the Cure is the same
as

as of a common Ulcer. Where we can come at the 73.
whole Fistula to lay it open, 'tis the easiest & speediest
way of curing. Several ways of performing this
are proposed; in all of them the Orifice is supposed
naturally, or by the method in the former Case, large
enough. Some Operators propose to introduce a small
Silk thread or Horse hair by one extremity of the
Fistula, and by means of an ey'd Probe to bring it
out at the other, if there is a passage already for it,
or else with a large Needle to force it thro', If there
is no Aperture: then by tying the two ends of the
string pretty tight with a noose running knot, and
every day drawing it straiter, they gradually cut
thro' the Segments, and lay the Fistula open; but
this method is tedious and extremely painful, there-
fore now adays it is generally laid aside. The
easiest and most generally practised method is, at
once to cut all open with a sharp Chirurgical In-
strument. The Instruments used are first Probe:
pointed Scissors, either straight or crooked, one
Blade is introduced into the bottom of the Fistula, and
then

74 then all betwixt the two Blades snipt thro'; or it may be done by introducing a Bistoury upon a furrow Bistoury, and then lifting up the Bistoury, or if the Bistoury be Probe: pointed, it may be introduced with a Sheath upon it, when the Sheath is removed, cut all thro'. The Bistoury may serve both these last Methods; or, we may thrust in a Probe or Directory, and raising them strongly upwards, upon them cut from without into the Fistula; or, if there are two opposite Orifices, and the Sinus is pretty large, a flexible wire or Probe may be put thro' the fistula, then with the extremities of the Probe raising all the Teguments as high as we can, with a pair of Scissors or Bistoury we cut away all the parts thus raised up. —

After the Fistula is thus quite opened by any of these methods, which we can get with most Convenience done, in order to make the Callus fall sooner off, we scarifie all around till the Blood appears, then dress it up with Escharotics & Digestives, & cure it as in the former Supposition —

Of

If there are several Callous Sinuses, we lay them ^{75.}
all thus open, and if there happen to be only some
small carious Columns betwixt them, we snip them
off with a pair of Scissors, then they come to be reduc-
ed to the former Class. These are said to be true
Cures of Fistulæ, and there is another which is only
said to be Palliative while the flux of Matter is
stopt in the Fistula while the Sinus remains. This
may be done in some Constitutions, or when either
of the two Cures are in hazard of discovering some
parts, which if destroyed or spoiled might be of
considerably bad consequences. E. g. If the Fistula
runs near a great Artery, Vein, Tendon, or Nerve,
or sprungy bone, even by a single Separation of the
Callus these might be laid bare, eroded, or destroyed,
the consequence of which, as you may gather from
the history of Wounds, would not be very favourable.
This palliative Cure is performed by giving such
medicines internally as may dry up the Humours
from the Fistula, as by Purgatives, Alteratives &c.
then by a very strict Regimen of the Nonnaturals
to

76 to furnish as little matter as possible, while at the same time the Fistula is dried up by Desiccant, Astringent, Topical Applications. —

Now before I finish this Affair of Ulcers, there is one or two Cautions necessary to be given.

1st Upon the Supposition your Patient is Cacochymic of an ill habit of body, and you have the least reason to suspect that by the Ulcer, nature designs to disburden herself never be too hasty in shutting up this Outlet, otherwise you may soon kill your Patient.

2nd If the external Ulcer be only a consequence of some internal part necessary for life being affected, and thus the Matter gets Vent, do not force a Cicatrix too soon, neither in this case should it be attempted, till the Patient's Constitution is corrected, or that particular noble part is cured. The necessity of shunning this Rock on which so many have shipwrecked, you'll see by considering the following Observations. Hildan. Cent 3. Obs. 39 relates the Case of an old Gentleman who had laboured under an

an Ulcer in his left Leg for several years; this
 Author proposed to cure him by correcting his ill
 habit of Body, on which the Ulcer depended; the Gen-
 tleman thought this method too tedious, and employ-
 ed some Quack, who very soon skinned the Ulcer over,
 but he was after seized with a Pleurisy, cough'd up
 some time before his death a considerable quantity
 of Matter, exactly the same as was formerly evacu-
 ated by the Ulcer. — In the Appendix of the same
 Observation, he tells us of a young Gentleman, who
 died very quickly after having by external Medicines
 put away an universal Scab he had over his Body.
 Wiseman. Book 2. Chap. Obs. 4. gives an instance
 of a Maid, who upon allowing an Issue in her arm
 to close, was thrown into a Rheumatism, & the first
 thing that relieved her was opening the Issue again.

Gangrene & Sphacelus.

We now come to the third manner of an Inflamma-
 tion terminating viz. in a Mortification, which
 when it is only partial, slight, or beginning in any

78. any member, is called a Gangrene, if it penetrates into the very bone, it is called a Sphacelus by the Latins Fide ratio, vulgo, Ignis sancti Anthony, S.^{ti} Martialis, tho' some of these names be applied to a Gangrene, & some of them to other diseases. —

Now, tho' an entire stopping of the Circulation in any part of the body does for the most part happen after Inflammation, yet there are several Cases where a Phlegmone legitima has not preceded, but since the management in all is pretty much the same, to make the history of this disease more complete, we shall consider all the Causes of it, and the manner in which it may be produced.

1st Whatever is capable of producing an Inflammation, will, when in a greater degree, bring on a Gangrene or Sphacelus. These Causes are either a too great quantity of Liquids, or the Velocity increased, or a disproportioned largeness of the fluids to the Vessels, or a Constriction of them, or a Compression on the returning Vessels &c. which have been already considered when discoursing of Obstructions, and in the history of Inflammations

Inflammations, therefore not necessary now to be repeated, and there are always daily so many Instances of Inflammations degenerating into Gangrenes, even when great Care is taken to prevent it, that authorities need not be adduced to prove the fact. —

2^{dly} By mismanagement of an Inflammation in applying improper Medicines &c. by using Repellents, or acrid Emplastics, if the Inflammation is come to a considerable height, a Gangrene may be produced, as happened to a Gentleman, whom Wiseman Lib. 1. Cap. 3. mentions. —

3^{dly} An Animony in our Liquids, whether it depends upon the Stagnation of these Liquids when extravasated, or if the mass of fluids is corrupted, may bring on such a Destruction of the Vessels, that the Circulation is greatly or in part stop'd, hence so oft Gangrenes upon old Ulcers, or extravasated Blood, or upon Fevers, small Pox, measles, Scurvy; by consulting Hilban. de Gangrena & Sphaeculo, Wiseman Lib. 6. Cap. 2. Deekers Exercit. Pract. una Sudorifica et Diaphoretica, you may be fully convinced. —

80. 1^{thly} When the Solids either by their too great rigidity or Laxity are not capable of propelling their Liquids, the motion of these must cease as we see is often the case of old people, such as have been exposed to violent Colds, those that labour under an Hydrops, such as have lost a great quantity of blood after violent Contusions, &c. as these Authors just now cited sufficiently by examples evince.

5^{thly} By the Application of Septic Medicines that are so acrid as to destroy any part of our Bodies they touch, as the Lap. Caust. Infern. Al. Vitriol. Butyr. Antimon. and under this head may be classed all Burnings, where plainly the Case is the same —

6th Several Sorts of Poisons have the same Effect, tho' we cannot account how they operate Doleus Encycloped. Chirurg. Lib. 6. Cent 3. tells us of a Woman, whose Leg immediately Gangrened after the Biting of a mad Dog. Aildan. de Gangr. et Sphac. warns us of the bad Consequences of arsenici being applied to Ulcers, by an instance of a Smith who was killed by the use of this medicine in a few days —

He

He there also confirms what so many relate to be the 81.
effect of that wonderful poison in the Plague viz a vio-
lent Gangrene in the fleshy parts of the Body; The
Bites of several sorts of Serpents have the same ef-
fect; 'Tis said of the Tiliamas and Tree in Ame-
rica that if any part of the human Body be touched
with it, immediately that part gangrenes —

1st We have reason to suspect a Gangrene upon ob-
serving the preceeding Causes, and that 'tis begun, by
the Insensibility of the part, the Nerves being destroy-
ed with the rest of the Vessels —

2nd The Colour changes to a pale ashy brown, livid,
or black, which is plainly owing to the different
Changes of the corrupted Blood —

3rd The Vessels now have no Spring or Elasticity
hence of the part seems soft and flaccid, and bears
the print of one's finger when pressed. —

4^{thly} The Blisters rise full of yellowish and reddish
Liquor, which is nothing else but the acrid corrupted
Liquors escaping out of the Vessels, and endeavouring
to make their way outwards, and not capable of
the

82 The destroying of the Epidermis, which is among the parts of the body that yields least to Corruption, tho' its Cohesion with the Cutis is but slight, 'tis raised up in Form just now described

5^{thly} If an Inflammation preceded, all its Symp^s Toms abate, as the Gangrene increases, tho' there is no removal of the Cause —

6^{thly} If it proceed from Cold there is a violent pinching pain, and intense redness, in the part; then very soon after the Black Gangrene appears. Since a Gangrene and Sphacelus differ only in their degrees of Mortification, from what has been said of the first, we may easily judge when it degenerates in to the last; the Member there turns quite insensible or stupid, so that cut or burn or do what you will with it the Patient feels it not any more than if it was a log of wood; It becomes cold, soft and flabby, or if the Liquids have been much exhausted & evaporated, it hardens and turns rigid, especially if strong Antiseptics have been used, which may likewise save the Cadaverous stinking Smell it is otherwise attended with —
The

The Prognosis must be drawn from the Constitution
 Sex, and age of the Patient, the State and Cause of
 the disease, the Season of the Year and the part af-
 fected; so that Gangrenes of the contained Viscera
 of the three Cavities are deadly; the reason of the
 aspection is the same as in Wounds, but greater.
 A Gangrene in a moist lax spongy part is very dif-
 ficult to cure, because there it easily spreads —

A Gangrene or Sphacelus from an internal Cause
 is much worse than when they come from an external
 one, hence Scorbutic, Hydropic & Phthisic people so
 seldom recover, and not once in an age will an old
 person seized with a Sphacelus from a mere defect
 of the Circulation escape. A Gangrene or Spha-
 celus, that begins in the Leg and mounts up above
 the knee, is for the most part mortal, because thus
 spreading it denotes an Obstinacy in the Sphacelus,
 that is, the Causes are very violent, besides, the
 Amputation is worse to perform above than below
 the Knee. —

A spreading Sphacelus attended with these Symptoms,
 a

84. a Restlessness, Raving, Delirium, which two denote the height of the Fever or Obstruction; Fainting, Belching, Hiccup, and Convulsions, which are all owing to a defect and irregular distribution of the *Liquorem Nervosum*; Violent racking pains, which depend on the Sharpness of the putrid matter, or great Impetus of the Fluids against the obstructed vessels; Cold sweats, the body becomes paralytic, and the fluids easily escape in great quantities at the relaxed pores of the skin, then Lastly, Lethargies, Sleepiness or Apoplexy, at which time the whole natural Faculties are destroyed and the Vital will soon follow. —

For the Cure, we are to endeavour to prevent the further progress of the Gangrene, and to remove the part already gangrened —

For preventing of the first we must consider the several Causes on which these diseases depend. If from an Inflammation, we must have recourse to the history of a Phlegmon: If from acid extravasated fluids, we are to make way for the Evacuation. If
from

from a mala Temperies, that must be corrected. If 85.
from a defect in the Circulation, we promote that. If
from Cold, by immersing or wrapping round the member
in cold water or snow for a little time, that the Spi-
cula or little Particles may be attracted, as we see
plainly done with frosted fruits, and we are sure has
been done in this very case. Witness, that remarkable
Story told by Pilscon. de Gangr. et Sphac. Cap 13.
or you have it in Munich's Chirurgy Lib. 1. Cap. 17
S. 35 after this cold application, the Circulation
is to be promoted, and the part kept warm, endeavour-
ing to make the Patient sweat, which will help the
total diffusion of these Particles of Cold, as of these
particles of our Fluids, which had been affected wth
the Cold. If the Gangrene owes its Rise to Septic
Medicines or applications of that nature, or to Poi-
sons, these are to be removed as soon as possible, and
at the same time such things are to be given in-
ternally as are known to be prevalent for such
persons.

The management of the part itself when once it
is

86 is gangrened is much the same in the several Cases.
For there is always a necessity of separating the
mortified part, and to prevent its Corruption before
it be separated, lest any of the corrupting matter
getting into the mass of blood create Fevers Phthi-
sis, Apoplexy &c. For this reason we scarify the
gangrened part into the quick, or till it bleed and
is painful, then the Antiseptic Fomentations and
Cataplasms are to be used, which are wholly made
up of such Medicines as most powerfully resist
putrefaction, such as Absynth. Rut. Scord. (ha-
momil. menth. Salu. Rosmar. Flor. Lavend.
Sabin. Puleg. Hyss. Marrub. ag. Calis vir. Aue-
lum forte, Sp. Vin. Camphorat. Ol. Terebinth. Ther-
iac. &c. at the same time endeavouring by the
strongest Digestives to raise a Suppuration at the
edges of the gangrened parts, by which this may
be loosened from the sound Circumference, and
when once the Eschar is brought away, the morti-
fied part is to be cured as a common Ulcer —

When the Gangrene has degenerated into Sphacelus
which

we know by the Colours thro' insensibility & Change⁸⁷
of Colour into a darker, there is a necessity of taking
all the member that is affected as far as it is so,
if it is such a one as can be amputated without
inevitable death to the Patient. But if either the
Patients Case will not allow of it, &c. If this be
ly from an Atrophia in an old feeble patient, or
if it happens where there is no possibility of Am-
putation, for instance in the Buttocks, we must
take one of these two methods, either to embalm
the part so as to prevent it from putrefaction, and
render it a piece of mummy, which is the most
proper method on the first supposition, and there
are some examples of this succeeding, after the Ap-
plication of those antiseptic Medicines we have al-
ready mentioned —

Hild. de Gangr. et Sphacel. Cap 7. mentions
one from Amelius. The Illustrious Boerhaave
tells us of the Case of a woman at the Plague,
who by the application of Scordium and Sp. Vin.
had her Leg thus preserved from Corruption. Nature
at

at length gently separated the sphacelated part and with a very little assistance performed the cure. In the Philosophical Transactions N^o. 313 P. 41. you'll find the story of a poor woman who had her Leg and Thigh thus preserved for a month or two, and in as many more the whole mortified part separated, the Limb was without any hazard cut off within a few inches of the Trunk —

The 2^d Exception against immediate Amputation of a sphacelated member is, when the part cannot allow of it without inevitable death to the Patient; all that we can do here is, by deep Incision as near the sound part as we can, then by actual Caustics and Escarotic Medicines to destroy what remains of the mortified flesh, for thus we hasten the separation, stop any flux of blood that may happen, and prevent the absorbing of any putrid matter, into the Mass of blood. Some pretend to do this entirely by the use of Escarotics, but it is neither so certain nor so speedy. We know that our pains are likely to be reduced by the

Diminishing

diminishing of the Symptoms, of Fever, Syncope, 89
Vomiting, Delirium &c by the progress of the Spha-
celus or Gangrene being stopt, by the lively colour
and moistness with good Pus at the Edges; When
the mortified flesh is separated, it comes to be treat-
ed as was said when on Gangrenes or malignant
ulcers.

Now, unless these Exceptions occur, the best Me-
thod of treating a Sphacelus is, to amputate the
member in which we are to observe these three ge-
neral Rules.

1st To save the sound part as much as possible,
2^{dly} To separate entirely the mortified part. This
I know some authors won't allow of, and advise
rather to leave some of the mortified part. Their
reasons are to prevent the Hemorrhage; and to
save the Patient Pain; but these cannot be of
any force, if we consider, that if the Rules of Art
be observed, there is no great danger from the flux
of blood, what small quantity of blood is lost
rather serves to unburden and remove the obstruction
from

90 from the Vessels, whereas when the putrid substance is left, the Obstruction is continued, from which and the sharpness of the putrid matter, the Sphacelus increases and spreads, and lastly, the Cure is prodigiously prolonged by waiting the falling off of the mortified part, and a great part of the bone being left bare; you may see the matter handled at length in Hildan. de Gangr. et Sphac. cap. 6. Vide Munich's Chirurg. lib. 1. cap. 17. S. 53. We must perform the Amputation so that we may leave the most convenient Use of the member to the Patient. The different Methods of performing this operation of Amputation, I may have occasion to mention when I come to Gangrenes and Sphaceluses of the particular parts. —

I should now go to the fourth way how an Inflammation may terminate, viz. a Suppurus, but because when it comes to this, all the Symptoms of Inflammation go off, and that it requires a different treatment from the inflammatory kind, I shall afterwards speak of it, as all that
treat

treat of this Subject do, as a different Class of 91.
Tumours, and therefore proceed to the history of In-
flammations, by running over the several species
necessary to be distinguished, and then observing
them as they affect such and such particular
parts, from which they acquire distinguishing
names, & require a different treatment —

Furunculus or Boil.

This is a prominent inflammatory Pus-
tule with a small head never bigger than a Pigeon's Egg, seldom
penetrating deeper than the common Teguments, it
soon suppurates of itself, throws out a small quan-
tity of Pus, and as Celsus Lib. 5. cap. 23. § 8. has
it, heals without any medicine, tho' it is certain-
ly better to treat it as a suppurating Phlegmon;
This sort of Tumour is very frequent in Children,
seeing them of much more severe Maladies, as I
have seen when they have been all over itchy or
Scabby, or feverish or had sore Eyes —

Thyma & Thygethon —

The Thyma is much akin to the Furunculus, which
is

92 is just such another Tumour in a gland, only it sometimes becomes much larger.

All the other inflammatory Tumours in the glands, which do not easily suppurate are called Phlegthlen — The Diagnosis, Prognosis, and Cure are easily known from what has been said of the Phlegmon; only particular Caution is to be had, that it is absolutely necessary to beware of Repellents if strong, or Refrigerantes, for fear of making it degenerate into a Schirrus. If it inclines to suppurate, or the Case requires Evacuation, we are to procure this Evacuation as soon as we can, to ripen it perfectly before we open the Abscess, to remove all the hardness of the Tumour by promoting the Suppuration with powerful Digestives.

Carbunculus.

Avogà, Carbo, Ignis Persuvis, Truna, are all names for one and the same Tumour, which is hard and intensely red in the middle, liable to turn into a black Crust, whence it has got its name

names, 'tis commonly surrounded with Pustules, whence a very ~~thick~~ ^{serous} trickles out, and attended with most racking pains, and violent Symptoms of Inflammation, such as excessive Fever, Delirium, Vomiting, Convulsions &c. It always proceeds from excessive fever, or extreme ill habit of the Patient's body or pestilential infection, then 'tis said to appear as a Symptom of the plague, hence 'tis plain the Prognosis never can be favourable —

In the Cure particular regard is to be had to the Fever & its attendants, and therefore a very strict low Diet must be enjoined, Evacuations used, and proper Medicines exhibited according to the Patient's Constitution, which properly is the Physician's province.

As for the Carbuncle itself, 'tis to be treated precisely as a Gangrene. viz. by separating the affected part from the Sound, which must be done by Scarifications, and the strongest Digestives, then it is to be treated as a malignant Ulcer —

Erysipelas

Erysipelas.

This is also called Ignis Sacer, or Rose, and has always been heated, I know, hitherto as a distinct Species of Tumours from the Inflammation; the reason of which seems to have been not to lose one of the four predominant Galenical Humours, on which the whole System of Medicine and Chirurgery was founded. But since from unanswerable arguments this System is now exploded, we are now no longer to build on it, and by examining the appearances of this Tumour, of which we now treat, it will be evident that it is as much an Inflammation as the Phlegmon itself. —

An Erysipelas then is a red but painful Tumour, not sensibly raised above the Skin, yielding to the Touch, and when pressed, losing of its redness, reaching no deeper than the Tunica Cellulosa, for the most part preceded by a Shivering and accompanied with a Fever. In this description let us observe the redness, heat, pain & fever, and we must plainly

see

see that it is a Distension of the small Vessels, 95.
from the red Globules of the blood, with an increased
velocity of our Liquors; that is an Inflammation.
But then it differs from a Phlegmon in these par-
ticulars, that its redness is not so greatly intense;
nay, frequently it inclines to a yellow colour; then
it wants the pulsation with which the Phlegmon is
attended. Further, it is not raised, but has an equal
surface, nor does it go deeper than the Teguments,
contrary to the Phlegmon, Lastly, it yields easily
when pressed, which the other does not —

The different appearances of these Tumours seem
to depend entirely on the different Series of the Ves-
sels, the obstruction that forms them happens in,
& the degrees of that Obstruction.

The Ensympelatous matter is lodged in smaller Ves-
sels, as appears from the want of such an intense
~~dark~~ red colour, hence the pulsation cannot be so
sensible, since the force impressed upon the blood
is diminished in proportion to the distance of the
Heart, and to the smallness of the Vessels, hence
also

96. also the Tumour can't in any particular place be thrust so far outwards, nor can it heave such a resistance to any compressing force. The obstructed matter seems not to be so fully impacted in the Erysipelas, as in the Phlegmon, as we may learn from its yielding to the Touch, from the change of Colour upon the yielding, from the frequency of its shifting from one place to another, and then 'tis much oftner cured by Resolution. From these two Datas, we may account for the Compound Tumours that partake of both their Natures, which are called Phlegmon Erysipelatodes, and Erysipelas Phlegmatodes, according as they approach in their Appearances nearer to the one or to the other, and if once we are acquainted with Adematous and Schirous Tumours, we'll soon understand Erysipelas Schirroides and Adematodes.

The internal Causes of an Erysipelas are much the same as those of a Phlegmon. more frequently indeed the Rise depends upon an internal Cause as we have good grounds to believe, & 'tis often a
Critical

critical discharge from the Mass of blood, than occasion: 97.
ed from an external cause, from the decrease of the
Fevers as it breaks out, and the dangerous Symptoms
that supervene on its returning suddenly. —

The Prognosis here is the same way to be drawn
as in the Phlegmon, with these Additions, that the
more intense redness the Tumour is of, so much the
worse consequence. If it gangrenes or suppurates,
the cure will at least be tedious and not without a
good deal of danger to the Patient, according to Hip-
pocrat. Aphor. Sect 7. 23. because the Tunica
Cellulosa is of such a spongy Substance and all
its parts communicate so easily, that it will afford
so great a supply of matter as cannot soon be eva-
cuated, and therefore must bring the Patient very
low; if all on a sudden the Erysipelas disappear,
there is a great hazard of the matter being convey-
ed to some part necessary for life, therefore no
very favourable Prognosis can be made upon this
Event. Hippocrat. Aphor. S 6. 25. and the same
reasoning holds good, if an Erysipelas supervene
on

98 on an Ulcer or Wound or Fracture, or Bare Bone: Besides, that in these last Cases it denotes a Cacoethes, which is enough with this addition of those diseases to destroy one —

A Rose in the Neck, Head or Face is more dangerous than in any other part, because the Crisum matter will in some part be in hazard of entering within the Skull, since before it comes to any of the external parts, it must be conveyed by the common branch of the Carotid Artery which also supplies the Encephalon. Now if it deposes that on the Brain or Cerebellum, what mischief may it not occasion; and upon the supposition of there being only an obstruction in the external Branches of the Carotid Artery, a greater quantity of Blood must of necessity be conveyed by the internal, and therefore the Encephalon is in hazard. If the Erysipelas suddenly disappears, and at the same time the other symptoms increase, the Patient runs a great risque of his life, since the Matter of it may be thrown upon some part necessary for

for life, et e contra, or quite go off as the Erysipelas⁹⁹.
disappears is a good sign. This Hippocrates remarks
Aphor. Sect 6. S. 27.

The greatest part of the Cure consists in moderating
the violent Impetus of the blood, and correcting the
vicious or Cacothet of the Patient, that is, upon the
supposition that it proceeds from an internal Cause,
otherwise, the external is to be removed immediately,
so that a spare diet and plentiful bleeding and
surgings do frequently of themselves perfect the Cure.

Witness Forest. Obs. Chirurg. 123. and so Cap. 6
Obs. 6. Several Authors by Sudorifics endeavour to
make the whole evacuation by the Pores of the Skin,
but this certainly is a dangerous practice, for fre-
quently in spite of all that can be done, it is not
possible to force sweating when the Vessels are very
full; and then these medicines in their operations
violently increase the Velocity of our Liquors and
heat of our Body. Besides, as Senctovius from
his Experiments has demonstrated, less is evacuated
by the greatest sweat than by our common insensible
Transpirations

100 Transpirations, wherefore as to the general management the former method is the safest. But then the greatest difficulty is in the topical applications. This we know that we dare not attempt to drive back the obstructed matter, into the mass of Blood, and then we must take particular care to shew its Suppuration or Gangrene, so that the only way left is to keep open the pores, and by them to assist the evacuation of the morbid matter.

Now there is a prodigious variety of medicines recommended by Authors for this purpose, a great many of which are of ad different natures as can well be imagined. A Prescription that one tells us he has done wonderful Cures with another Instance is where a Gangrene is brought on by it, as for instance Scultet. in his Ornament Chirurg. Obs. 63 assures us nothing is comparable for an Erysipelas with this Linimentum Simplex which is made of Letharg. scrup. Succ. Solan. and Ol. Rosar. or instead of it Ol. Amygdal. dulc. by which alone he has cured innumerable Roses. Hildan Cent. 1. Obs. 82. tells the
Case

case of a Countryman who laboured under an Eri. 101.
sympelas, which by the anointing of it with Ol. Ros.
gangreneed. Aquapend. Wiseman, Munich and
most Writers recommend both Acids and Antacids
sometimes separately, but mostly mixt, as Creta
Terra Emulita Litharg. Ceruss. &c with Vinegar.
Muy's Decad. 1. Obs. 5 makes it his whole aim to
subdue the acid ferment that is the occasion of the
Tumour.

From this jarring among Authors, I must own
Gentlemen, that after consulting a variety of them,
I found my self more embarrassed than when I be-
gan; nor is it possible to reconcile the Contradictions
they abound with, therefore, without hazard to any
of them, I shall first mention those applicati-
ons that reasonably appear hurtful and are gene-
rally allowed to be so, and then give my own opinion
as to the management —

1st Then, all theunctuous Medicines of what na-
ture and denomination soever, whether Oils, Oint-
ments, Cataplasms, or Plaisters are to be avoided,
as

102 as blocking up the pores of the Skin and hindering Perspiration, which is of worse consequence than any service they could do; by relaxing the fibres is of advantage.

2^{dly} All such Applications as strongly stimulate the Vessels, and create pain, are not to be used for by these the Inflammation would be increased and the Obstruction confirmed, whence Suppuration or Mortification would be brought on.

3^{dly} Such Medicines as powerfully constrict the Solids and coagulate the Liquids must be discharged because they straiten the pores of the Skin, and may force the obstructed matter back by the Veins into the mass of blood, or produce a gangrene —

4^{thly} All violent Relaxants, such as hot Fomentations or Cataplasms are not to be used, because the Tumor Cellulosa is naturally lax of itself, and if this natural disposition is too much increased, the Liquids finding too little resistance would be thrown thither in greater quantities, that is, the Tumor would be increased; besides, the heat makes the Liquids more capable

capable to corrupt.

103.

In my opinion then the safest and most effectual method of Cure is, to observe strictly the general method already mentioned, and to keep the part affected as soft and easy as possible with such Applications as may greatly promote Perspiration, either as Resolvents or as Absorbents consuming the moisture exhaled; for which reason I would not much oppose the famous Meal pock with the mealy sate applied next the Nose, provided the pock itself was soft enough, and renewed whenever the Meal began to turn caky with the moisture of the Skin. Nor should I absolutely refuse green Lint and Chalk, if the Chalk is small enough powdered and the Lint without Shivers. Flor. Sambuc. and Pul. Sabin. applied in a bag, or the Folds of a Cloth either dry or moistened wth Aet. vulg. or Sambucinum or white wine are mightily cried up by some, and are the only Applications they will allow of for an Erysipelas in the face, and truly it seems not to oppose any of the Indications, provided they are not applied cold or hot, but tepid.

Sp^d

104. Spt. Vin. Camphorat. is the most general used in this case amongst us, and truly seems to answer the Intentions well enough by softly stimulating and at the same time resolving. A Decoction of Seale Alth. Flor. Chamom. Sambuc. &c in white wine & water with Acetum and Spt Vin. Camph. must certainly be proper, if applied tepid, as I think all Applications here should be; for if they are too hot they constrict the Vessels, and may produce a Gangrene, if hot, the Inflammation is hereby increased, whereas when of the same degree of heat with the part to which they are applied, they exert themselves without any ill consequence.

If the Erysipelas is attended with little Blisters, as is frequently is when the Inflammation is very high and the thinner part of our Liquids escape between the Cutis and Epidermis where they cannot now pass, in this case the Blisters must be snipped off for fear the Liqueur in them turns acid and destroys the subjacent parts. After they are cut, a Dressing with some drying Ointment, such as the Ungt. Album, Turke &c

105
is to be applied. If the Erysipelas suppurate or
malignant, it is to be treated as was directed when in
these two maladies. After the Rose is removed the
mala Temperies which was the occasion of it, is to
be removed by the Physician; or even supposing no
sacroethes, it will be necessary to endeavour the ex-
cretion of any morbid matter which may still be
lodged in the Mass of blood —

When thus the general inflammatory Tumours
are understood (for the inflammatory Tubercula I
pass over as belonging to the diseases of the Skin)
there will be no great difficulty of managing them
when they seize on particular parts, which accord-
ing to our former proposal we are now to consider,
as far as they have got particular or distinguishing
names bestowed on them, or require any particular
manner of Treatment differing from the general
directions laid down.

We shall begin at the Head, and go on by the
Trunk to the outmost Extremities, and first then
as to Inflammatory of Tumours of the Eye —

Inflam. of the Eyes.

The Eyes are subject to several inflammatory Tumours and Ulcers, which are particularly taken notice of by Authors, but these I reserve till we treat of the Maladies of the Eyes.

Inflam. Tumours of the Lips.

Inflammations of the Lips are not to be fretted too much with acrid Medicines, nor too violently to be repelled by astringents, lest they degenerate into a Schirrhus or Cancer, otherways they differ nothing from other Inflammations.

Inflam. Tumours of the Nose.

The Nose is sometimes seized with a putrid stinking Ulcer called an *Ozena*, but that depends on a Carious Bone and therefore now not to be handled. *Parotitis*, or an Inflammation of the Glands of that name is a species of the *Phygethlon* & requires precisely the same management as the Lips.

Inflam. Tumours of the Ear —

When Inflammations happen in the *Meatus Auditorius*

or in the Ear itself, by the general Antiphlogis, the method and emollient Injections, and vapour received thro' a Funnel in the Ear, we endeavour to resolve it; If it does suppurate, by detergent Injections we keep it clean; if the matter likewise is internally and comes away by the Tuba Eustachiana, such Gargarisms will likewise be necessary, in this last case indeed there is considerable hazard that the Patient may lose the Use of his Ear affected; tho' I have seen the Hearing recover perfectly in a little after —

The Uvula, tho' commonly mentioned, has nothing in it particular.

Inflam. Tumours of the Tonsillae

The Glandulae Tonsillae, whose Tumour is called Paristhimon have as little, and the management is the same as in the Inflammation in the other parts of the Fauces, when it obtains the name of Angina; only that besides the external Application Gargarisms must likewise be used.

If any of these suppurate, Mr. Petit's machine which

108: which before was described for making an under aperture in Sinous wounds, will be the most convenient Instrument for cutting into them to discharge the Pus.

If the Tumour is so great as entirely to hinder Deglutition, we must cleanse the Guts by a sharp purging Clyster, and afterwards inject nutritive Liqueurs to nourish the Patient, till once the Inflammation either resolve or suppurate & break, so that the natural passage for our Aliments is again open. If by the Swelling, the Ingress and Egress of the Air to and from the Lungs is interrupted, the Patient in a little time would be suffocated, to prevent which, we must perform the operation of Bronchotomy, before it come to last extremity. I know that this operation has very often been unsuccessful, but it is entirely owing to the delay the Surgeons make to perform it, fearing, if they should die, the blame might be laid at their door by the ignorant Relations and Visitors who declare a mortal aversion at it, and

and cannot conceive how a Man's life can be saved by ¹⁰⁹
cutting his Throat. But those that understand the
matter know that in a cautious hand there is no
danger, whereas a few minutes delay would inevita-
bly kill the Patient —

Inflam. Tumours of the Thorax.

Inflammations and Ulcers of the Thorax have no-
thing very special in them, unless they have degene-
rated into a Sinous Callous Ulcer or Fistula, and then
only when it penetrates into the cavity of the breast,
or slips under a Rib, or affects some of the Bones.
When a Fistula Thoracis penetrates into the breast,
we should examine very narrowly whether it depends
on an internal cause, such as a Vomica Pulmon.
or any other internal collection of Matter, for in this
case the Fistula must be kept open, else you destroy
your Patient, as is already proved by several ex-
amples. If it only depends upon an ill treatment of
an Wound, or some external Abscess, we may endea-
2 vor gradually to separate the Callosity, and to fill
it up as was directed, when on Fistula in general;
only

only a great deal of Caution is here necessary, lest any of the Escarotic Medicines should fall into the Breast. When the Fistula has its Orifice above, and has insinuated itself downward below the Rib, we must beware of following Celsus's method, who, Lib. 7. Cap. 4. S. 2. advises us to lay it all open, upon the cutting thro' the Ribs as well as the soft parts, for thus the Intercostal Nerves and Blood vessels would be cut asunder and the Rib would be render'd carious: But we had better do as Aquapina directs de Oper. Chirurg. to introduce a crooked Canula into this ^{superior} Orifice to the bottom of the Sinus, so that the ~~extremity~~ ^{extremity} of the Canula may be turned outwards, then with a long crooked Needle, whose eye with a thread in it is not far from the point, perforate the ~~under~~ part of the Sinus, and leave the thread like a Seton in it. Thus, the Matter will easily find an Exit, and proper Medicines may be conveyed into the Sinus: when once 'tis sufficiently cleansed the Thread is taken out, the superior Orifice is allowed to close up, the inferior is kept ^{some}

some time longer open for discharging any mat-^{ter} that may still come away. If you find it ne-
cessary, you may keep this as a Fontanell or Issue.
by putting daily a piece of Tent in it. — These
sinuses or Fistulae of the Thorax that affect any
of the Bones are not now to be treated, since they
differ nothing from others, but only in so much as
they are attended with various bones which is not
our present Subject —

Inflammatory Tumours of the In- guinal & axillary Glands —

These are indifferently called Bubones, nay, the An-
cient's took this word in as large a sense as the
Phygethlon, tho' the most part of moderns confine
it to the swelling of the Glands of the Groin. Now,
the swellings of this as well as those of the Arm;
armpits is the same as that of the Parotids or Phy-
gethlon & therefore needs not be repeated. —

Inflam. Tumours of the Glans.

The Glans or bulbous extremity of the Penis in Men,
and Preputium, or double folding of the Skin that
covers

112. covers it, are both subject to Inflammations, and then either the Preputium is already upon the Glands, and because of the pain and Swelling cannot be drawn back of it, so that they are in hazard of growing together, or of the Glands being too much compressed, which disease is called Phymosis; or else when the Inflammation happens, the Prepuce is retracted and makes a straitning round the neck of the Glands, which obstructs the free Circulation. This Malady is commonly known by the name of Para-phymosis. Both owe their Rise to the common Causes of Inflammation, but most commonly to Violence used, or to Venereal Matter, and unless its speedily remedied may bring on a Gangrene on the parts affected and afterwards on the whole Penis. —

The Method of Cure is first to attempt the Resolution, as of other Inflammations, only with this Caution, that by means of a Circular Belly Band, the Penis is always to be supported upon the Abdomen, and never be allowed to hang
Down

113.
down, for fear of giving an easier descent to the
Arterial blood, and a more difficult ascent to the
Venal, which infallibly would increase the In-
flammation; and then we are always from time
to time to endeavour to uncover the Glans in the
Phimosis by gently pulling the Prepuce back-
wards, and in the Paraphimosis we try to cover
the Glans, which reduction is proposed to be done
thus - with the fore and middle behind the ring
of the Prepuce at the Neck of the Glans the fore-
skin is brought forwards, while at the same time
with the two Thumbs upon the extremity of the
Glans, or at its sides, that body is thrust back-
wards, but this Compression of the Glans makes
it thicker, and therefore worse to reduce, there-
fore others propose not to touch the Glans at
all, but if we can any way get it elongated,
which makes it ~~smaller~~, it would render the
reduction more easy; therefore we may try Mr.
Petit's method of putting a small uniting bar,
Dodge round the Glans, with two ends, by which
we

114. we may stretch the Glans somewhat, while we endeavour to bring the Preputium upon it. If none of these methods succeed to either one or other we without delay proceed to the Operation —

That for the Phymosis is thus performed, draw the Preputium forwards with the external and internal Skin as equal as you can, then by this stretching them they will cut more easily and also more equally; then introduce the probe-point^d Blade of a pair of Scissors sideways between the Preputium and Glans, and raising up the edges, snip it clean thro' at once; or, introduce the same way a small Bistoury with a bit of wax on its point, thrust it thro' the farther part of the Prepuce, and cut all quite thro'. But be² cause the wax is liable to fail before the In²strument is far enough introduced, Mr Peconier proposes to use Bistoury Capue or Rasie, the Blade whereof is so taken out by undoing a Screw, that keeps it in the Sheath; when the Instrument is far enough introduced, he undoes that Screw, takes

115
takes out the Sheath and cuts the prepuce wth
the Blade the same way as others do with the
Bistoury. If an Incision does not sufficiently free
the Glans, another may be made and if the Fra-
num is swelled and hinder the uncovering of the
Glans, it may be snipt thro' —

In a Paraphymosis, small Incisions are made
into the Glans, to give a discharge to the obstruc-
ted matter, tho frequently these do more harm
than good. But the most effectual way is to cut
piece meal the rings of the Preputium by slip-
ping a crooked Bistoury under them and raising
the point quickly. —

After both operations small Pledgets with vulne-
rary Balsams and Digestives are to be applied to
the Incisions, and emollient Cataplasms over these;
and the proper bandage with circular Bellyband,
by which the Penis is sustained —

Inflam. Tumours of the Anus.

No part of the body is more subject to Inflamma-
tions and Obstructions, consequently Suppuration
sinous

116. Sinous Ulcers and Fistules than the Anus,
and surely no wonder, as it is the common Sink
of the Body, and surrounded with a great deal of
flabby substance, while there are few muscles to pro-
mote the Circulation of the Liquor in the Vessels,
at the same time the Veins that return the Blood
have a perpendicular course to make upwards, and
that without Valves to support the weight of the
Body, and then these Vessels are subject to Compre-
ssion from the hardened Faeces and external Bodies.
Now, when the Vessels are obstructed, either Inflam-
mation, Haemorrhoids, or some such Tumours
may follow, which afterwards suppurating, or
the matter turning acrid will occasion an Ulcer,
which in such a place will soon make a considera-
ble progress, and that more inwards than outward
because the Skin will not so easily yield as the
subjacent parts, therefore soon becomes sinous, hence
in some time Fistulous.

These Fistules are either blind, i.e. have no open-
ing externally, with the Gut, or open externally and
internally

internally, and then they are either simple i.e. have but one Sinus, or they are Cunningham like the several Sinuses.

The Blind Fistulae are only guessed at by the preceding Signs of Inflammation, by the Hardness, Tumour, Pain, and Itching. —

The External are apparent. The Internal are known by the same Symptoms as the Blind, & then the Patient evacuates the Matter by Stool. We discover that they open internally as well as external: by a mixture of the Faeces Alvine with the Matter evacuated at the external Orifice, or by the Flatus coming this way, or still more surely by introducing the Probe into the Sinus and the Finger into the Anus. As to the knowledge of the depth, magnitude, Number &c. sufficient Directions were given when on Fistulae in general, only that if a Fistula mount high up the Gut, its incurable, or if it pass the Sphincter Muscle, it is not to be cut. Nor does the method of Cure differ from the other Fistulae, only that before the operation

118. Operation, the Guts are to be well cleansed. In the Operation the Finger in ano may be assistant. The Patient must be fed with meat that yields little Feces during the Cure. —

- " After this he comes to the Amputation of the ^{when sphacelated} Extremities, which I have omitted, for which consult
- " Garangeot. Cap. 47. 48. I have only asserted his
- " Opinion about Astringents to be applied to Stumps
- " after Amputation. For Mr. Labourine and Verdun.
- " Method of Amputation consult Ruysch Epist. 14.
- " and Garangeot. Cap. 49. "

In Amputation after the large Arteries are secured from bleeding by stitching, they were formerly wont to apply to the Stump Pledgets armed with ~~Alburnen~~ Ovi, Bol. Armen. Long. Dracon & other astringents, but these are now laid aside, as running into Anots, and creating pain, hindering a sufficient Compression, and sticking so close that they could not be removed without hazard of forcing open the Vessels. For these Reasons our Surgeons use pledgets dipt in scalding Oil, of Turpentine, or hot Spirit of Wine

Vini, but in my opinion these labour under considerable disadvantages; for tho' they effectually stop the bleeding from the small Vessels, and do not stick so close, as the former, yet they are naturally known to prevent Suppuration, and harden any parts they are applied to, which retards the Cure of the Stump, besides, they are generally clapt to so hot, that they create pain in the very Application — And therefore I have always imagined that the dry Pledgets themselves were the best Medicines, for when they have imbibed the blood, and it begins to coagulate, there can be no better astringent, and then there is no impediment to the Suppuration, which goes on naturally and quickly; This very Suppuration or the Formation of Pus betwixt the Pledgets and Stump makes them come off with greater ease. I am still the more confirmed in this opinion, finding my self supported by no less a Surgeon than Mr Pelt, as we learn from Garangeot Cap 48. above his first row of pledgets puts in as much Cadix as to make the Stump equal —

Perniones.

Perniones.

In the Winter, people that are exposed to Colds, are very liable to be affected with a superficial Inflammation of the feet or hands, which is not of such an intense redness as the Phlegmon, and is attended with a whiter and softer Swelling, for the most part a troublesome Itching is found in the part, and a small pustulous Ulcers break out. This sort of Tumour has got the name of *Pernio*, when in the hands, 'tis commonly called *Shibbones*, when in the Feet, *Kibes*, by our Commonalty, *Monkey Heels*.

The Diagnosis is plain from the Description given. —

The Prognosis is wholly owing to the easiness or Difficulty, tediousness or Quickness of the Cure, for unless indeed it is very ill managed, it is seldom of dangerous consequence. Those of any standing are in hazard of returning, the parts being exposed to cold, those with pustules are worse to cure than those without them; From the little danger of this disease it is that such a variety of infallible Cures are delivered by authors

Authors, and dogmatically inculcated by all the old
 women in Town; Turnips either by way of Fomenta:
 tion, or Cataplasms are good Specifics, especially if
 a little Myrrh and Turpentine be mixt, which is
 Celsus's Cure. But without troubling you with a
 Catalogue of all the Medicines handed down, we
 should certainly treat those Perimones as other In:
 flammations from Cold; that is, if we are called
 immediately when the Extremities are yet affected
 with Cold, to apply for a little the coldest things
 we can find, such as Snow, Sea: water &c. to attract
 the Spicula of the Cold, as we see practised to restore
 frosted fruits, flowers, and eggs; then by warm
 antiseptic applications we endeavour to recover
 the natural heat of the part, and prevent a Gan:
 grene, afterwards heat them with resolvents, as
 other Inflammations to be cured by the first In:
 tention. The little Ulcers are to be cleansed, digested and
 healed as other putrid Ulcers, the Liquors are to be cor:
 rected if in an ill state, and Cold is particularly to
 be guarded against —

Sanaris

Paranis or Paronychia.

The Extremities of the Fingers are subject to Inflammations, which, because of the extreme sensibility of the parts from the great Number of Tendons, Nerves &c are attended with the most racking pain —

If it is no deeper than the common Teguments, the Tumour appears, but if it is under the Sheaths of the Tendons, the Tumour is not perceptible. By reason of the Communication of the Nerves, the whole Arm is oft affected, and frequently the most violent Fever attends it. This Disease is well known by the name of *Paranis* or *Paronychia* from its nearness to the Nail, in English, *Whitloe*.

The Prognosis is drawn from the deepness it goes, the concomitant Symptoms and Continuance of it; If it is only lodged in the common Teguments, there is no danger, if in the Sheaths of the Tendons 'tis more difficult to come at, and if it resolves, very long and large Sinuses may be formed; If betwixt the Periosteum and Bone, still worse to resolve, and suppurating endangers the Cavities of the Bone —

123

The Prognosis towards the symptoms that ac:
company it are much the same as in general, of In-
flammations, whether the Pain is great or small, Fe-
ver violent or moderate, or attended with Delirium
Convulsions &c. or whether the Arm is also inflamed,
or it is confined to the Finger, and then 'tis plain we
have a fairer lay to carry it off with the least dif-
ficulty. If we are called immediately upon the first
appearance of it, when if it is already considerably
advanced, suppurated or gangrened or degenerated in-
to a serious Ulcer, or the Bone made carious —

The same Indications serve here as in a Phleg-
mon, viz. to endeavour the Resolution, if it suppurates
it must be opened, shunning Nerves, Tendons, & arte-
ries as much as possible; especially if there is any sup-
position that the Matter is contained in the Sheaths
of the Tendons, or betwixt the Periosteum and Bone,
it must be laid open without delay, for in a little
time these parts may be destroyed by the Sanies. If
it is Sinous, it must be managed the same way as
other

124 other Sinuses, only because of the vast number of Tendons Ligaments &c. the part must be cut cautiously, and truly, when the matter runs in a Sinus along the whole hand, it would both take a very expert Surgeon and Anatomist to open it, so to shun the many dangers that lie in the way; as by consulting Garangeot Cap. 46. You'll easily see confirmed. The last Species of Inflammatory Tumours is the

Pterigon

Or an inflammatory Excrecence near the Nails of the Fingers or Toes, it soon suppurates, or degenerates into a fœtid Sanious Ulcer with proud flesh; of itself it is painful, but still more so by the pressure of the neighbouring Nail, tho' this Tubercle at first seems of no Consequence, yet if neglected grows to a considerable bigness and is extremely painful and troublesome to remove. May by ill management it sometimes endangers the loss of the Finger or Toe - The Cure of it is the same of any other fœtid ulcer viz. with Desiccants, with gentle Escharotics, and Digestives

Digestives, tho' all other means are in vain, unless we can get that part of the Nail separated that feels the Ulcer. When that is once taken off, there is no great difficulty in the rest of the Cure

Oedema.

Now that we have run thro' all the different Species of Tumours, which happen in such Vessels as are capable of receiving the red Globules of Blood, and that depend on the Extravasation or Obstruction of the Blood taken in the vulgar sense. Our Method at first properly led me to consider the like maladies in the next Class of Vessels and Liquids which we can distinguish, that is which in the Serum and Lymph whether these Liquids are obstructed in or have escaped out of the Vessels in which they are conveyed. These according to the ordinary Division of Tumours are comprehended under the general designation *Oedemata* or Tumours from Phlegm, from their watery nature may in general be termed Hydrops after Celsus Lib. 3. Cap. 21. —

The

126. The Species into which I design to divide this Class
and which I find authors agree to distinguish, tho
frequently they heap of severals of them under the
same Title, such as *Oedema Anasarca*, *Lempholeg-
matis*, *Hydrocephalus*, *Hydrops Pectoris*, *Hydrops
Ascites*, *Hydrops Ovarij*, *Hydrops Uteri*, *Hydrocele*
By *Oedema*. Hippocrates expressed a Tumour in
General; Galen confined that term to pituitous
Tumours, and here I take it in the most limited sense,
or by it I mean a white soft Tumour without heat,
pulsation, or acute pain, for sometime the Impression
of any impressed Substance and condensed to some
particular part or member. The Seat of it is most-
ly in the *Tunica Cellulosa*, the Matter of it is a thin
watery Humour, it is formed slowly or by Congestion,
and it seldom suppurates. The definition so
plainly distinguishes it from any we have hitherto
mentioned, that 'tis entirely needless to examine
the several Characters of it in order, to observe the
difference. Let us therefore proceed to the several
Causes

Causes that may produce it. —

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Any Compression upon the returning Vessels and Veins may occasion such a swelling for by this Compression the Motion of the Liquids must be much retarded, and the Vessels much fuller and more distended. Among the rest the small Vessels that open into the Tunica Cellulosa will now discharge a greater quantity of Liquor, and perhaps grosser than ordinary, while it cannot in such quantities return, as plainly is the Case of Women with Ticks or Adematous Arms or Legs with Bandages or Swaths, or with a big Phlegmon or Schirrhus on a large trunk of a Vein — The Inactivity of the Solids on the Liquids may have the same Effect, whether that depends on the Laxity of the Fibres, or upon the want of that adjunctory, ^{muscular} Motion necessary for propelling the Liquids, or upon a considerable diminution of the quantities of the Liquids, for upon any of those Suppositions the Circulation must become languid the Liquids deprived of their due brisk Motion, easily are resolved, and instead of driving on in a direct Course

Course. run into the lateral Branches, and more especially when there is the least resistance to them, they there settle, but the Tunica Cellulosa is one of the most lax places of our Bodies, and has no compressing force of muscles upon it, therefore the most subject of any to give a Lodgement to these Liquids hence we see Oedematous Swellings happen to weak Constitutions, or that use crude food difficult to digest; to such as indulge a Sedentary Life or to people that stand long, hence so few after they are brought very low by acute diseases, as Consumptions, Melancholia, Icterus, &c. hence too large Evacuations by bleeding and purging, too long fasting bring on the same disease. The Thinness of our Liquids may likewise give Rise to this disease — Whether that is owing to the Inactivity of our Solids or too great a quantity of Liquids drunk while the Excretory Organs do not discharge a proportional quantity. Whence so many Boni Companions, Tipplingers, mongers, or constant Tea, Bitters or perpetual Guzzlers of Liquids stand a fair chance for this malady

Malady, and very often acquire it. And lastly, the
Rupture of the Vessels by incision or too violent dis-
tension, or internal Injuries may produce the
same effect. —

A simple Edema of itself is not dangerous, tho
often tedious to cure. But if this swelling appear
after an acute disease, but still more after one
of long standing with a chronic disease, it is a
bad sign. If it breaks and the Water makes apas-
sage thro' the skin, there is hazard of a gangrene by
the sudden collapsing of the parts already too much
weakened, or else a sordid tedious Ulcer from the na-
ture of the contained Liquor that will not suppu-
rate, or be converted into Nature's sovereign Bal-
sam, Pus, and from the ease of communication of
all the parts of the Tunica Cellulosa in which
it has its Seat —

The Indications of Cure are, To remove the Cause
of the Tumour, consequently to prevent any further
depositing of that matter, and then to resolve what
is already collected. In the first Indication regard
must

130 must be had to the several Causes mentioned —
If the Tumour depends upon an external compressing Substance on the Trunk of the Veins, that is to be removed. —

If the Cause is a general Laxity of the Solids, by a good Nourishment and strengthening Diet, and by corroborating Medicines, the due Contractibility of the Fibres is to be restored. For this see Boerhaave's Aphorisms. § 24. 31. If want of Exercise have given rise to it, that is to be supplied —

If the Diminution of the quantity of the Liquids has been the occasion, by a good easy digested Diet that is to be supplied. If the Adema appears as the consequence of another disease, this is to be ~~removed~~ in order to remove the swelling. If the Liquids are too thin, at the same time diminished in quantity, such med^s as corroborate the Solids and compact the Liquids are proper. If the thinness of the Fluids depends upon the Ingesta, and that their quantity is increased, these Evacuations, by which the thinnest part of the Blood is excreted, are to be promoted, such are the
Excretory

Excretory Organs of the Guts, Kidneys, Salivary Glands, which is done by Purgings, Diuretics, Diaphoretic Medicines and Salivation; at the same time not to hinder the good effect of these Medicines by too great a quantity of Liquid Ingesta; And Lastly, if the Tumour proceeds from a bursting or breaking; by internal Agglutinatives, i. e. Coagulators of the Liquids and Compression we are to endeavour to stop up the open mouths of the Vessels. In all these Cases you see a strengthening Diet is necessary, and the use of too much Drink, especially watery thin Liquors is forbid; moderate Exercise is of great advantage; too long Sleep, constant Rest, melancholy Thoughts, and Venery are strictly to be forbid, as contributing every one to weaken the Patient.

No doubt, Gentlemen, you have observed that Hooding is no where mentioned, neither is there any one of the Cases that can allow of it. The only Supposition that favours it is, where the Liquids are too thin, and at the same time the quantity is increased

132 increased, but upon opening a vein you know both
the Serous part and red Globules are evacuated,
Now here the watery part of the blood ought only
to be separated, for which purpose the other Evacua-
tions mentioned serve much better. 'Tis true that
sometimes contraindicated Symptoms happen,
which oblige us to use Ven. Sect. such as a fever
as a Pleuritis or other inflammatory diseases
supervene, in order to relieve the Patient speedily
and shun a greater Evil, we let blood, but not at
all to forward the Cure of the Edema.

The first Indication belongs almost entirely to
the Physician's province, and therefore I have on-
ly glanced it over —

We come next to the Resolution & Management
of the Tumour itself, which properly is the Surgeon's
business. The method of Resolution is, To increase
the Evacuation by the skin, and a resisting of the
resuming any part of the matter into the mass
of blood, and to strengthen the relaxed Solids. —
In order to apply Medicines aright, we must have
regard

regard to the contained Matter, and state of the
 Tumour. If the Matter is thick, which we know
 by the white Colour and the long impression it
 bears of the finger, we must apply Attenuants,
 such as Rad. Emul. Camp. Bryon. Herb. Absynth.
 Abrotin. Salv. Flor. Chamom. Melilot. Rosar.
 nebr. Sambuc. by way of Fomentation with some
 Sal. Marin. Gum. Nitr. Cuneus Flavellat. Quercin
 Sarsment. Vitis Stipitum Fabar. and Sulph. viv.
 dissolved in the Decoction with Sp^t. of Wine or
 Vinegar afterwards added.

For the Formulas of which See Mennius Chirurgy.
 Lib. II. Cap. VI. S. 11. 12. Or, if the parts are al-
 ready weakened, and you are afraid of hot Fomen-
 tations, make use of the attenuating Gums such
 as Benzoin. Galban. Succin. Sagapen Myrrh
 Aloes as a fumigation.

The method of Fumigation is, Throw a little of
 the powder of these Gums upon the red Coals in a
 Chausseur, receive the fumes thereof in a wooden
 Cloth, with which rub the tumefied member, and
 continue

134 continue the fumigating the Cloth and rubbing the member for some time, then wrap it round with the same Cloth and with a bandage swathe it up well, beginning at the smaller part and by dolours mounting up, taking care that there be no Wrinkles or inequalities in the bandage, nor no place uncovered by it. If the lower Extremity be affected, a laced Stocking or Truss is still better than the bandage. If in the superior Extremity the Glove may be made, and truly to this Compression of the bandage a great part of the Cure is owing, nor will it do easily without it.

When once the Tumour begins to yield, astrin-
gents are necessary to strengthen the Vessels and to constrict them, the quantity of these Constrictors increased, and the Tumour decreased. If the matter appears thin, as we may know by the clear watery Colour, and the quick return of the parts after Compression; By friction we assist the return of the matter into the Vessels again
and

and supply the defect of the lax fibres. This 135.
Friction has a still better effect, if Deobstruents to
clear the pores, and Attenuants to prevent the thick-
ning of the matter are at the same time applied.
Among the best of these is the former method of
fumigation, or Sp. Vin. Camph. or Vinegar and
Sal. Nitro: but the most effectual method is equal
Bandage. A simple Adema thus managed sel-
dom fails to be cured.

If the Tumour inclines to suppurate, as sometimes
by ill management it may, or if it has begun to
gangrene, or has degenerated into a hard indol-
ent Tumour akin to a Schirrus, it must be
treated as one of these maladies.

Anasarca.

It has much the same appearance as the former
the Distinction however that seems to be made is,
that the Anasarca is more general, the matter
commonly thinner, therefore more moveable, and
it

136 it plainly appears to be a Hydrops of the Tunica Cellulosa, while the descending parts are much affected with it in the day time, especially the Legs swell, in the night time they fall when the body is laid in a horizontal posture, and in the morning if the head is low, the Face, Eyelids &c are tumified

The Causes and Prognosis are much the same as in a true Oedema, only that there is greater reason to suspect a greater Laxity of the Solids, and Thinness of the Fluids, and consequently the use of internal medicines is more necessary —

The most effectual way of curing this disease is by a drying diet with a small quantity of Drink, by frequent repeated Purges, if the Patients Strength can allow it; to promote the Circulation by Friction or moderate Exercise, to evacuate the more fluid part by Diuretics or Diaphoretics for the evacuation of the matter thro' the Skin; The Antients used to expose the Patient

Patient to the Sun, or cover them with the warm 137.
Hand, tho' in the use of these or such like; we
must beware of too scorching a heat for fear of
raising a fever, or bringing on a Gangrene in the
weakened parts, or inducing a putrefaction of the
contained matter. The members most subject
to swell are to be treated as in the former case by
Frications, Corroboratives, and Sweating —
Some propose to apply a blister, or to put an
Issue in the most depending parts, by which the
whole matter may be evacuated. If the disease
is in the beginning, and the Patient labours un-
der no other distemper, this may be the most
quick way of freeing them. If on the contrary
the Malady is universal, and is come to a
great height, the Patient at the same time
weak and consumptive or hectic. By this me-
thod his life would be but shortened, for by the
sudden evacuation and consequently Compressi-
on taken off the Vessels, the small quantity of cir-
culating Liquids would not be capable of filling &
extending

distending them all, nor are these lax Vessels able to propell these Liquors, that is, the Circulation on which life depends would soon cease as happened in several Cases I my Self have seen where Nature either forced such an Issue, or the pores of the Skin were dilated so that the matter issued out plentifully thro' them. Two of which I shall mention. The one is of a Woman in the hospital at Leyden whose Legs bursted at the ankles, by too hard friction, and all the water was there evacuated, she died within two or three days thereafter. Before her death the part was entirely sphacelated — The other is of a Washer woman in the water of Leith; thro' the pores of her Skin the Water came from her Legs and Thighs in such quantities that wherever she sat, the place was wet all over, and she died soon after — But even in the most favourable Supposition the part where the Blisters or Issue are applied, almost never miss to gangrene, or to be infected with a tedious Sordid

sordid, sanious Ulcers, Therefore rather than try such dangerous tho' quick remedy, we had better keep to the desiccative method tho' more tedious.

Hydrocephalus.

This general term may signify any preternatural Collection of Water in the Head, & therefore authors divide it into several Species.

1st It may be lodged in the Tunica Cellulosa & then it differs nothing from the Leucophlegmatico, which we have just now discussed.

2^d It may be lodged between the Pericranium & Skull This we discover by raising the Teguments with the Fluctuation of the water, and its falling more to the depending part, in the different positions of the head, the same method of Cure is proper for this also only where it does not soon yield there is hazard of the Bone below spoiling, and therefore ~~with~~ the Lancet or Trocar or some such instrument we make an Aperture in the most depending part, & give an Exit to the water, & by Compression and Emollient medicines

Medicines under a new Collection.

3^d The Seat of it may be within the Cranium, even betwixt the Cranium and Dura Mater, or betwixt the Membrane and Pia Mater, or
Lastly, In the Substance & Vessels of the Brain.

This Disease seldom happens but in Children, or at least cannot be observed after the Bones of the Head are perfectly united. The Symptoms by which we know it are, the weakly Constitutions of the Child, a Heaviness, Drowsiness, Lethargy, Paralysis, &c. of the Senses, a disproportioned Increase of the Head to the rest of the Body, because the openings of the Head, as they are commonly called, or the distances betwixt the Bones are enlarged. If the Water is above the Dura Mater and sometimes when it is immediately below it, these Openings are raised up, and feel very soft, with a sensible fluctuation of the Water. But when it is lodged within the Substance of the Brain, we can only guess at the disease by the preceding Symptoms, & in Adults it is but a Conjecture at best.

The

The Prognosis here is seldom favourable, because ^{141.}
of the necessity to Life of the part which is attached,
and the difficulty to come at the Matter to evacuate
it; then, if we do make an Aperture, we can't promise
to have the Evacuation at Command, which by freeing
the Brain too quickly of the Compression the worst
Consequences might follow, as Obstructions, Gun-
-grenes, &c. for our great Medicine or Bandage
for preventing such mischief, is of little Service
here, besides, the Collection of the Water, and the
Symptoms by which we should discover it come on
so gradually, that it is not noticed, nor are we cal-
led till the disease is too far advanced. There is
therefore hazard, wherever the Matter is lodged, so
certainly the deeper it lies below the Skull so much
the worse Hence Authors agree in esteeming the Col-
-lection in the Ventricles a desperate incurable disease,
All that we can do in the Cure is, to prescribe a strict
Regimen in the Nonnaturals, as in the Edema and
to use the same general Med^s there mentioned. on
the head subtle attenuant Applications are proper,
and

142 and Fontanels may be made in the depending part
to favour any effort that Nature may make, endeavoring
all the while by the general Head bandage
such as the Capeline or Coursechet to preserve the
Bones from yielding any more, but rather to make
a slight Compression on the Bone — Several At-
tempts have been made to cure it by letting out the
Water at an Aperture made in the most favourable
place, but because of the difficulties I mentioned,
they have never been attended with success but ra-
ther hastened the Patient's Death, as in several ex-
amples may be instanced. One Author I shall only
cite for all Vander Wiel Obs. med. Tom. 2. Obs. 14
where you find a vast Variety from all the Observ-
ers of Note, to prove the three different Species
of this disease, the vast bulk some of these Swell-
ings have grown to, the symptoms with which they
were attended, the different reasonings in accounting
for it, the attempts that have been made to cure it,
the event of these attempts whether successful or not

Hydrops

Hydrops Pectoris.

143

The Cavity of the Thorax is liable to the same disease of a Collection of Water, for the same reason as all other Cavities, which we shall consider more particularly when we come to the Hydrops Abdominis where it is most frequent.

The Hydrops Pectoris is known by the dyspnoea of the Patient and by the difficulty of breathing, the weight upon the Diaphragm in an erect posture, Great uneasiness in lying on the side opposite to that where the water is contained, and the great necessity of the Patient's lying on his back if both Cavities are affected; It is distinguished from the Matter of the Breasted Vermicula (which is the only malady it is in danger of being confounded with) by the gradual Increase of the Disease, & by the want of pain, inflammation, and Fever.

The general Method of Cure is the same as in the Oedema, viz by a strengthening Diet, as roasted Meats strong broth, & generous Liquors, as Claret, Strong Ale but if the Patient is consumptive, you are to forbear the

144. The Use of strong Drink, otherways you will kill your Patient.

The Prognosis is drawn from the Constitution of the Patient, as when on Oedema in general, & the continuance of the Malady, for if it is of long standing, the Viscera are in danger either to be relaxed & weakened by soaking so long in tepid Water, or if it has turned putrid, which it is in hazard of, by the heat of the body and admixture of any Air that may escape thro' the weak Membranes of the Lungs, I say, in this Case the Viscera have probably suffered, and therefore much is not to be expected in the Cure which only can be performed by the general method laid down, and the Evacuation of the Matter by the Empyema, which was particularly described some while ago, when treating of wounds of the Thorax —

D^r. Eccles sometime ago informed me of a singular Case of a Dropsy, which few Authors have observed, viz. Hydrops Pericardij, some such Instances you'll find collected by Under-
Wiel

Wiel Cent 2. Obs. 28. There is always about a 145.
spoonful of Water in the Pericardium. Now this is
occasioned by too great a Separation of this Li-
quor, 'tis very hard to discover this disease, for 'tis
seldom accompanied with any other Symptom than
a Palpitation of the Heart. This seldom appears.
Dr. Eccles had a Boy who laboured under this dis-
temper for a considerable time, the Symptom was
a Palpitation of the Heart and a difficulty of
breathing, but not so great as to suspect any
Collection of Water in the Thorax, but the Child
died, and when opened the Pericardium was
swelled to such a bigness and so full of Water
that we could see any of the Viscera of the Thorax.

Hydrops Abdominis —

The first Species of Abdominal Dropsies that offers it-
self is the Hydrops Peritonei, or a Collection of Wa-
ter betwixt the Duplicator of that membrane, or
betwixt it and the Transversalis muscle. For tho'
Authors generally agree to lodge this Matter in the
double Peritoneum, yet they give such a description
of

146 of it when they come to dissect the dead Subject, as
leaves us in an uncertainty May, no less man than
the famous Nuck and the great Anatomist Littere
tho' both of them give a long and full account of this
Disease; in its Rise, Progress, Symptoms, & Conclus-
ions, as you'll see in Vind. Med. Cent. Obs. 28.
and the Memoires de la Acad. des Sciences August
27th 1707. When they come to the Dissection, tell us,
that the Matter was contained in a large mem-
branous Bag, the upper part of which adhered to
the Musculus Transversalis, and the internal was
pressed in upon the Viscera of the Abdomen. Now,
which so ever of the Membranes forms the Sacus,
its very surprising to see such a Separation of
parts that naturally adhere so firmly, and that
such thin Membranes should allow of such ex-
tension as they must suffer in containing ~~of water~~,
according to Nuck Lib. 95 of Water, and in that
woman whom Joba meekren speaks of Cap. 49, where
125 Lib of Liqueur were found in such a bag. The
only way we can account for the Separation of the
membranes

Membranes is, by supposing an obstruction in 187
one of these little Glands or Vessels, that are in great
quantities about these membranes, so that they
could not discharge the Liquors either into the Cavity
of the Abdomen, or for lubricating the Muscles; upon
this Obstruction a Tumour would follow, which may
break the little Fibres by which the Membranes ad-
here, and from these Fibres or Vessels the Fluids would
be poured out into the Vacuum. The same may
happen in consequence of any small Ulcer or the
bursting of such a Tumour as at first supposed, for
when once there is a Separation of these Membranes
and a Rupture of the Vessels made, the Liquors
constantly discharge themselves into that new Cavi-
ty, and gradually thrust the membranes more from
one another, and therefore increase the Malady both
ways. In proportion to this gradual distension, the
Vessels that run on the membranes are more explicat-
ed, the fluids have an easier access, consequently a
larger accession of nutritive matter to every part
of it. i.e. the Saccus must become thicker in its Sides.
This

148. This we observe to be true in all the parts of our
Body, which are so gradually distended as here we have
supposed. —

The Symptoms by which we distinguish this sort
of Dropsy from any other are these

1st It makes very slow progress in the beginning,
in so much that often for some years it comes to no
considerable height, and the Patient finds no other
inconveniency from it, except the Weight and Bulk,
which is plain from the nature of its Formation —

2^d After it has formed, the Tumour has the same
appearance, let the patients body be put into any
posture, because there is no space for the Water to
move hither or thither since the cavity is formed
entirely by Distension of the contained Liquids —

3^d The cavity of the Abdomen is not equally swelled,
but is only protuberant in one place —

4. And every where else we counter: coup the fluctu-
ation of the Water is not felt. These three last Symp-
toms exactly distinguish it from the Hydrops Ascites,
where the Water rushes to the most depending part,
the

the whole Abdomen is distended, and the fluctuation ¹⁴⁹
is found all around —

5th The lower Extremities of those labouring under
a Hydrops Peritonei are either not at all, or not till
the Patient turns very weak, subject to a Leuco:
ephlegmatic.

6th If after Paracentesis or Puncture hath been per:
formed, a long Probe hath been introduced by the Canu:
la of the Trocar, you may discover the whole extent
of the Tumour, and at the same time upon misping
the Inequalities of the Intestines, you are sure
that you are not in the Cavity of the Abdomen, and
Lastly, after the Waters are evacuated by the Trocar,
if you inject any Liquor into the Canula, and it
immediately returns, you may determine the Dropsy
to be that of which we now treat; For the Ab:
domen would contain a good quantity of Liquor be:
fore any of it would return by the pipe thro' which
it was injected. —

The Prognosis here is to be made after these:
veral Methods, for if the Swelling is small, and of
short

150 short continuance, if the Patient is young, strong, & otherwise healthy, there are hopes of curing him: but if on the contrary, he and the disease are both old, if the Patient is already weak and any of his Viscera affected, by attempting the Cure we may shorten his days. The whole Indications of Cure here are, to reunite the separated Membranes, which cannot be done without removing any intermediate Substance, that is, evacuating the contained Matter, & after fully cleansing the Scurus, to bring the divided parts into Contact —

The Evacuation is performed by Tapping with the Trocar, or rather by making an Incision at the most depending parts, and by a Tent keeping the Orifice open, till all the Matter is discharged. If the Matter seems to be thick and glutinous, as very often, by the stagnation in such a warm place, it does, there will be a necessity to thin the Humour by some attenuating Disolvents, made into Injections, & q. Honey & Sal Nitre dissolved in warm Water, or an immediate emmenagery Decoction. If by the Pus or Sanies that comes out at the Aperture, there is reason to suspect some ulcer

Ulcer. The Injections are made more detergent by adding to the Oculnary Decoction some Tincture of Myrrh and Aloe, or Elix. Propriet. and by good bandage the Expulsion of the Matter is forwarded, the membranes are kept together, in order to Reunion, the Flux of Liquids is prevented, and the ill Consequences attending the too sudden removal of a considerable compressing force upon the Viscera are evited. The Diet and internal Medicines are much the same as in the Edema, and truly except in the manner of Operation the treatment agrees with that of the next Species of Abdominal Dropsies that comes under our Consideration, viz.

Hydrops Ascites.

By this I mean a Collection of Water within the Cavity of the Abdomen, tho' it may signify any watery Tumour, where the Swelling resembles a Bottle. The Ascites is commonly divided into Hydrops Aperta and Clausa, i.e. the Water is either shut up into a Cista, Capsula, or Bag, within the Abdomen, or is at liberty to move thro' the whole Abdomen. 'Tis the last sort I would confine

152 confine the Denomination of Ascites to, since all the other has names from the particular parts the water is contained in —

The causes of this disease are either the Breaking of some Lymphatic Vessel, which is the common account given for it, or the bursting of some watery Tumor inclosed, or else it depends on the antecedent causes mentioned in an Edema, such as languid circulation from the too great Laxity of the Solids, or the Thinness of the fluids, from a too great quantity of Liquid ingested, while the necessary excretory organs don't perform their part. In any of these cases the Liquor that is secreted in the Cavity of the Abdomen for lubricating the contained parts, and hindering their Concretion; this Liquor, I say, is secreted in greater quantities than the other vessels that return it into the Mass of Blood can absorb, and sure no wonder, since the less elastic the vessels are, so much the easier they are dilated or forced open, but the more the first of these vessels are dilated, the more the last sort are compressed, & then when

when the Absorbents have lost their Spring, they be-^{153.}
come inactive, so that according to the Disproporti-
ons of the Functions of these different Vessels, the Drop-
sy will proceed more quickly or slowly — This I
take to be by far the most genual Method of Dropsies
forming, for these reasons —

1st The Rupture of the Vessels is assumed without any
demonstration from Anatomical Dissections of such a
thing ever happening.

2^{dly} The antecedent Causes are the most improbable
to occasion such a Rupture. Would you not believe
I had advanced a most absurd proposition in affirm-
ing, that because the Liquids are less solid and their
Velocity diminished, i. e. that their Movement or Im-
petus upon the Solids was every way decreased, there-
fore the Solids were every way liable to be broke by
them. —

3^{dly} We are certain from the humidity observed in all
the large Cavities, that there is a constant excretion in-
to these Cavities, which Liquor must again be reasumed
or absorbed by some proper Vessels, else no body could
escape

154 escape without a Dropsie of some sort or other; for a further proof of this last sort consider the common Anatomical Experiments of injecting thin Liquor into any cavity, which in a few days is entirely exhausted without one drop coming out at the Orifice by which it was injected.

^{1st} Then Lastly, we observe after death, especially if of a long Chronical languishing disease, there is always a larger quantity of Liquors found in these Cavities than is necessary for the Uses designed, or is to be found in live Dissections. Nay, in Chronic diseases there seldom fails a Collection of Water in all the Cavities; but in these Cases the Liquors and Solids are in much the same Circumstances as in the Causes assigned for Dropsies; therefore since the Cause is the Same, the Effect will be alike; or a Hydrops may be formed without any rupture of the Lymphatics, or such like Vessels. This Argument holds in all other Dropsies as in the Hydrops Ascites of which we now treat —

The Signs by which we discover this malady are, the Patient's Constitution of body, the swelling of the abdomen

157.
Abdomen, the most depending part being always
the most protruded; nor is this confined to one part, but
equal to all. By the pressure upon the Diaphragm
the Patient must have a difficulty of breathing, espe-
cially when he lies horizontally, is somewhat relieved
of the symptoms by sitting up, upon pressing the
Patient's sides alternately, the fluctuating of the
Water is heard, and by holding the Palm of one's
hand on the one side while the other hand strikes the
other side, the fluctuation of the Water is felt —

The Prognosis entirely depends upon the Pati-
ent's Constitution, and the Continuance of the disease,
that attends it; if the Hydrops was simple i.e. not
attended with any other disease, and of no long Con-
tinuance, and the Patient young and strong, and
will subject himself to prescriptions, there is hopes
of his recovery. But if the Ascites is attended with
an Icterus and Phthisis or hectic fever, if the Dropsy
is of long standing, and the Waters have begun
to corrupt, as Thirst, Bleeding at the Nose, the Itching
or Pain within the Abdomen, will discover to us; if
the

158 The Patient is old and feeble, or will continue his old trade of tippling and carousing, we are not to procure a Cure.

The Indications here are, to remove the Cause of the disease, and to evacuate the Liquor already extravasated. The first of these is properly the Physician's Business, and is performed by a nourishing strengthening Diet of strong Broths, roasted meat with Spice, &c. and good generous Liquors, as Claret, Mum &c.

The Medicines ought to be of the Corroborative kind. Several Cases of these you have most distinctly in Boerhaave's M. M. Cap. Cui titulus, Cardiac

et Diata agroti Sect. 1095. If there is a Len

tor in the fluids, by attenuants & Deobstruents that is to be removed; The Cardiacas here are of very great use also, but the most powerful are the Secretions of Guajac, Sassafras and the other woods, but above all Mercurial Preparations prevail —

If the Liquids are too thin and in great quantity such Excretions as evacuate the thinner parts of the Blood are to be increased, and therefore Emetics
Purgatives

Purgatives Diuretics and likewise Syllagogues are¹⁵⁹
necessary. Consult for these Docker's Exercit. Pract.
or Boerhaave's Institutions.

To answer the Second Indication of evacuating the watery
Liquor contained in the Abdomen, two Methods are
proposed, either by Exsiccation or Perforation. The
Exsiccation, or Drying up of the Moisture entirely
depends upon this, that if we can prevent such a con-
stant considerable discharge into the Abdomen, sti-
mulate the Vessels, and promote any of the thinner
Excretions, the extravasated Liquor will again be re-
asumed into the Vessels, and be discharged by that
Excretion. This is a very odd Phenomenon, and has
puzzled all our Rationalists to account for it, tho' cer-
tainly true. I have seen upon giving a strong Pur-
gative, a prodigious quantity of Water evacuated
per anum, and the hydropical Tumour of the Abdo-
men to subside, in proportion to the quantity of Liquor
that was evacuated. A Woman of the hospital at
Leyden laboured under an Hydrops Ascites, and her
inferior extremities at the same time were prodigiously
swelled

160 swelled; The Axyzel Scillit. was given by Boerhaave's
Orders, to stimulate the Viscera, and create a Nausea
there, then to vomit, which occasioned a considerable
Discharge by Stool, at the same the Water forced a
passage thro' the Teguments of her Legs, and came
away plentifully; upon this her belly fell, and her
Urine (which before was almost stopt) upon this di-
minishing the pressure of its excretory Organs, came
away in prodigious quantities, to the entire draining
of the Abdomen, as was clearly seen upon her body
after death which was hastened by this too sudden
Discharge.

A great many Observations may be advanced from
Authors to confirm the fact, but it happens so frequen-
tly, that it consists with the knowledge of every Prae-
titioner. I shall only mention the famous British
Hippocrates, Sydenham, in his Tract. de Hydrope;
where you have Examples of such Discharges by vomiting,
purging, and urine, that great man gives up the
rational Account for it as above his Comprehension —
And really, for my own part, unless by the Stimulus
of

161.
of these Medicines, the Viscera and muscles of the
Abdomen being forced with a more than ordinary Con-
traction, and that, after the same manner as the
Peristaltic Motion of the Intestines, do thereby con-
strict the effluent Vessels, while they force the Li-
quids into the Absorbents, whence they return to the
heart, and are afterwards discharged by the branches
of the Celiac and Mesenteric Arteries, into the Stomach
and Intestines, or by the Emulgents conveyed into the
Kidneys, where these thin liquid ~~liquors~~ are secreted,
unless, I say, 'tis after this fashion brought about,
I know not how the Phenomenon is to be solved. 'Tis
indeed sufficient for Practice to be certain from Ex-
periments, that such a discharge may be made, and
therefore if we could cure our Patient by Exsiccation,
which seems to be the only method that Sydenham
allows of, we must expect it smart Purgatives &
Emetics frequently, or rather constantly, as far as the
Patient's Strength will admit, for if there is any con-
siderable time betwixt the Evacuations, no good can
be expected from them, since in the Interval as much
water

162 water is thrown into the Abdomen^{as} was by the
Medicine discharged.

Diuretics, of which the Lixivial Salts of Plants are
the most commended, are somewhat slower in
their Effects, but large as safe as Emetics & purgatives.
During the Cure and sometime after the Patient
must ~~be~~ kept to a strengthening Diet, no small
Liquors, or but little quantities should be allowed
him, and the Cordial corroborative Medicines are all
along to be continued. May in such Cases as I men-
tioned in the Prognosis to be dangerous, the sudden
and violent Evacuations are not to be attempted, be-
cause they rather hasten the Patients Death, by ex-
hausting the small remains of Natures force, than
give the least hopes of a Cure. All we can do to such
is, to support with Diet and Cordials and assist na-
ture by Medicines adapted to the other Maladies they
labour under. But I will not enter into a further
detail, having already wandered out of my Cure, only
I recommend to your perusal the above mentioned
Treatise of Sydenham's de Hydrope.

The 2^d.

The 2^d. Method of evacuating the Hydropical Water ^{163.}
is, by Perforation. The Antients performed this Ope-
ration by cutting into the Cavity of the Abdomen,
with a Bistoury or Lancet, and into the aperture
introduced a Canula of Lead, by which they let out
as much Water as they thought convenient to draw
away at once, then either leaving the Canula in the
wound they stopp'd it up, or taking out the Canula,
they cramm'd the Orifice so full with Caduceas to
hinder the Egress of the water; after some days they
again opened the passage, and thus continued the
Evacuation from time to time till the Abdomen was
entirely drained, making the Canula shorter as the
belly subsided, for fear of bruising the Viscera. This
Method is now laid aside, because the wound is larger
than is just necessary for the design, the pipe is w^t
difficultly introduced, and the Surgeon is not master
of the Evacuation, for the Water makes way either
at the Joints of the Canula, or thro' the dressing that
is put on the Orifice. I have but mentioned the
old way of Perforation. You may satisfy yourselves
more

164 more fully of it by reading *Aquapendent. Chirurg.*
Operation. —

That the evacuation of the water may be gradual some have proposed to thread a seton needle with twisted Wool and Cotton, which must be thicker at one end than the other. The needle thus prepared, they thrust obliquely into the Cavity, so that there is a good distance betwixt the Viscera and containing parts, there may be hazard of introducing the needle, and then by the frequent Stillidium and fretting the Orifice with the Thread, a Gangrene may be very readily brought on.

The Instrument most generally used nowadays, and certainly the most convenient for the operation of the Paracentesis, or Perforation of the Abdomen is the Trocar, which has got its name from the Stilet, while the extremity ends in three diamond Squares, the point being the coincident Angle of the three on the other end of the Stilet, the length of which ought to be four Inches more or less, according to the Thickness of the Tegmenta, there is a handle

handle of Ebony or Ivory. there is fixed to this
 Stilllet a Silver Canula, commonly as large as a
 Goose quill, which is exactly adapted towards the
 Squares, where there must not be the least irregu-
 larities or Roughness, at the other extremity it is
 framed with broad Shoulders — Mr Petit would
 have one of these Shoulders made in form of a Spout
 or Canal, that the Water might run in when the
 Abdomen is so much emptied that the Contraction
 of the Muscles is not able to throw in any long-
 er into an Ache or to project — The advantage
 of this Instrument consists in the quickness and
 easiness of performing with it, in the smallness
 of the Wound it makes, and then during and after
 the Operation we are perfectly secure that not any
 one drop of water can escape without our knowledge
 and design.

The place where the Puncture is made is determin-
 ed to be 4 or 5 Inches below, and as much to the
 side of the navel, reasoning in *corpore sano et*
mediocri

164. mediocri, in a healthy middle statured man. The reason of this stated Rule is, because in this place which is exactly about the middle between the Navel and superior angle of the Costa of the Lij, the Tendons which are more difficult to pierce and worse to reunite, are shunned. The thick flesh bellies of the Muscles are likewise evited. There is no hazard of hurting the Epigastric Vessels, and here the water is in such quantities as to hinder the point of the Instrument to hurt the Viscera; besides, as the Pat. in the Operation is reclined to the side on which the puncture is made, this place becomes the most opening, and consequently gives the fairest opportunity for evacuating the water; because of these advantages the Operation is always to be performed here, unless in this one Exception, viz. of an Hydropneumothorax as an effect of the Ascites, which will be the next Dropsy that we will consider.

I know, Gentlemen, you will object how precarious the common rule of so many Inches below, and to the side of the Navel of an Hydropic person is, since according to the

165.

to the different distensions of the Abdomen the Distance will be found to be further from or nearer to the Navel, after the belly falls, and certainly it is a gross Error in the Generality of Authors to fix this as a Rule. But allowing that all the parts of the Abdomen, which only the Muscles cover, to be pretty near equally distended, as I believe will not be denied, then the middle point between the Navel and the angle of the Costa Opis Ilij, will remain immovable, or change very little, in whatever the degree the belly is swelled, and therefore should be observed as by far the most certain place where the operation is to be performed; Since then this point is determined on, we must endeavour to give it all the Advantages we can in the Situation, and therefore instead of placing the Patient in a sitting posture, by which the water falls down into the lower parts, we rather lay him along the Bed, near the Side of it, reclined a little to that Side on which we design to operate with the Abdomen as far over as conveniently we can, a Servant with his hands pressing the other Side to make the

166 the part lense, and to force the Water most to the
where the puncture is to be made; the Surgeon with
the one hand assisting the action, with the other
at the determined place thrusts in the Trocar which
ought to be dypt in Oil, to make it smooth & slippery
in its passage, he thrusts, I say, a little obliquely
upwards, to give the Water an easier Exit, till one
by want of resistance at the point of the Instru-
ment, he judges that he has penetrated into the Ca-
vity, he then Draws out the Stillet and lets the
Water run out into a Vessel designed for it. If the
Canula is stoppt by the Viscera, or any concealed Sub-
stance, so as to hinder the water from running out
with a probe we push back the Impediment, & clear
the Pipe, till once we have taken as much Water
as we design, in determining which Authors are di-
vided The Antients all agree we should never ex-
cise all the water at once but at several times be-
cause they observed, that when the water was quite
exained, the Patient, tho' seeming at first mightily re-
lieved, yet in a little time fell into a Syncope or fainting
which

which he with difficulty, year sometimes never re-¹⁶⁷
covered. and in such as died after these evacuations
they observed, that the Vessels of the viscera were
full of blood, and oft times gangrened. —

The reason of these Phenomena, tho' generally ill
accounted for, is very plain. When the pressure upon
the Diaphragm by the evacuation of the water is at
first removed, the Lungs have more liberty to play,
the Patient breathes freely and is mightily relieved,
but at the same time the descending aorta is freed
from the pressure upon it, therefore a much greater
quantity of blood is drawn into it by the heart
than before, the superior branches of the aorta
consequently must have less blood sent thro' them
in proportion, since before there was but a scruple
enough quantity to fill all the Vessels in the con-
dition they were then in, Now, the quantity of
Liquors secreted within the Skull as in all glan-
dular parts will be in proportion to the quantity
and Velocity of the blood sent to it. But in case
both are diminished, the Fluidum Nervosum will
be

168 be sent out in such small quantities as are not sufficient for continuing the sensible action of the several parts, which we call Fainting, or else the Course of the Nervous Liquor is entirely stopt, and this is, the Patient Dies.

Now that great quantity of Blood that is driven into the descending Aorta easily makes its way into the Iliac and Mesenteric Arterys; but then these Vessels are so weak both from the Constitution of the Patient, and the soaking so long in Water, that when thus distended beyond their ordinary dimensions, they are not able to contract themselves and propel the contained fluid; the Stagnation of these make the Vessels tumified with blood, and if it has begun to corrupt, a Gangrene has begun in these parts —

Some Moderns again contend that we should drain the belly entirely at once for these reasons, That the longer the water is of evacuating, so much the more it relaxes the Tone of the Fibres, and then after the air has access to the water, as it has after Tapping, it soon corrupts and will quickly destroy the Viscera, which by
pressure

pressure upon the Abdomen, the difficulties started ¹⁶⁹
by the Patients will be obviated, and 'tis certain from
Reason and Practice, that they are on the right. But
in my opinion they have not hit upon such an ex-
act way of putting this in Execution, for they propose
as we may learn from Garangeot to make the pres-
sure with an assistants hand during the operation,
and afterwards to apply the Bandage, but at that
rate the pressure is unequally made, and as the ap-
plication of the bandage is removed, and they can
never be certain of straitning to a just pitch;
whereas, if a large broad belt, which would cover all
the Abdomen over, was made of such Stuff as would
not stretch, and yet were pliable, such as Horse girths,
and this was lined with Shambo for softness & easi-
ness, it might by the help of Thongs and Buckles
be straitned precisely as the pressure was taken off
by the Evacuation of the Water, for which the contini-
uance of the Respiration as before would be an exact
Gage. This might be done without mistaking in any
measure

170 measure, the right place for tapping for any difficulty of coming at it, for the part is to be marked with Ink, before applying the Swath and the Belt is Fenestrated a little piece of it as made to open or shut, or buckles and Straps, which hole is adapted to the part marked. Besides, the Belt has this advantage, that at the part of the perforation the resistance is less than any where else, consequently the Water will be forced thither in greatest quantities, for its speedier and more complete evacuation, and then Corroboratives may be applied on or below the belt, as well as upon any other Bandage. These Corroboratives are much the same as the topical Applications in the Oedema.

When the Water is thus quite drained, the Canula is taken out, and a little Caduce and Plaister is applied to the wound, which will soon close by the Contraction of the parts, and the Window of the Belt is shut so as to make as great a Compression there as any where else —

The Patient is to be treated as to Diet & Med^l the same

same way as in the removal of the Cause which we have already treated of.

The most exact account of the Disease, the different ways of curing it, the greatest number of Observations both of successful and unsuccessful Cures with Anatomical remarks, you will find in *Memoires de l'Acad. des Sciences* 1701. 2. 3.

Hydromphalos.

This is a thin watery Tumour of the Navel, the Water is either collected in the Tunica Cellulosa, then it is known by its common Signs already delivered and is cured the same way as an Oedema. Or else the disease is a consequence of the Hydrops Ascites, when the Abdomen is very much distended, and all the parts extremely relaxed; wherever there is not a sufficient resistance the parts gradually give way; but about the Navel there are muscles to resist, hence so often the Ascites, is accompanied with this Tumour, which is easily distinguished from the former Species by the Concomitant signs of an ascites, by the

The flux of Water found in it, by the yeading or even disappearing of the swelling where it is pressed on, the Water being forced into the Abdomen again. This makes the Prognosis of the Ascites so much the worse, as denoting a fullness of the Abdomen and a Weakness of the parts, then unless speedily remedied upon any quick motion of the body or any strain, it is in hazard of bursting; and then whatever way the water is evacuated, the sudden collapsing of the overstretched parts, is in danger of producing a Gangrene.

In the Cure of the Ascites we must remove its Consequences, as was hinted at, when determining the place of Tapping. If the Navel is very much distended, and the Segments then, then we ^{may} make the Aperture there, for 'tis easiest done and full as safe and convenient as in the ordinary place. ^{A Woman} Behn 50 and 60 in this town had for a considerable time laboured under an Hydrops Ascites, which thrust out the Navel and produced an Hydropscephalus, she would not

not be persuaded of her friends to take advice 173.
either of a Physician or Surgeon, till one morning
turning herself hastily in bed, the Navel bursted and
the Water rushed out in great quantities, which put
her in such a fright that she was glad to send to
Dr. Smellum and me. By the time we came the
whole bed was swimming, the Navel was entirely
collapsed and beginning to gangrene, as appeared by
its black colour, coldness, and insensibility. The Dr.
ordered proper Cordials and Diet, I applied Antisepti-
clic Fomentations and Cataplasms which recovered
the Umbilicus, while by the desiccative method the
waters were pretty well discharged — as soon
as she recovered her health pretty well, and was, as
she thought, pretty well recovered, she dismissed us
and our orders, and fell to her old way of Living, we
sometime after brought back the Dropsy, and
along with it a spitting of blood that soon dispatch-
ed her. —

Hydrops

Hydrons clausa.

There are none of the Viscera of the Abdomen but what have vast numbers of vast Glands for the Secretion of the Liquor particular to each of them, & all of them have particular Organs, for separating either a mucus or Lymph for the lubrication of all the parts, or be conveyed to the mass of Blood by the Lymphatic and Chyliferous Vessels.

Now if the Emiparies of any of these Glands happen to be obstructed, while the little Arteries are constantly pouring in their Liquor into its Cavity, it is gradually distended, its Coats become thicker, and frequently it swells to a prodigious bulk as you may be convinced of, by looking into many Instances produced by Vander Wiel Cent 2. Obs. 28. From several Authors of such hydropical Tumours in the Omentum, Stomach, Guts, Mesentery, Ovaria, Tuba Fallopiana, Spleen, Kidneys, Liver, Uterus &c. To these I shall only add a few more. A Woman of this town had all the Symptoms of being with Child, and her Belly gradually increased, went ten or eleven months

months, but at length was convinced of her mistake ¹⁷⁵
by the subsiding of her belly. Some months after she
again imagines herself with Child; When the time
of her delivery came near, the Midwife assured her
she had Twins in her Womb. In the eleventh month
of her pretended going with Child she died. I was
called to open her; in the Abdomen I found several
pints of Water, and a glutinous tough muilage
and in the inferiour part a large round Substance,
appeared, adhering firmly to the Peritoneum, where
it denies the internal Substance of the Abdominal
muscles, from which I separated it by dissection, it
filled up all the Pelvis, and rose up near as high as
the navel, adhering to all the surrounding parts,
from which I cut it out as carefully as I could, then
I discovered the Uterus in *Stata naturali*; as also the
Ovarium and Tuba Fallopiana on the right side
The Tuba was cut off, and the Ovarium was taken
away on the left side which made me suspect the Tu-
mour (which was eleven Inches across the Abdomen, ^{twice}
seven

176 seven and eight up and down, and four or five
thick / to be the swelled Ovarium as I was fully convinced
by the Dissection before Dr. Crawford & Dr. Alston. It
was covered with two membranes within, which was
a great number of round vesicular bodies, some filled
with Lymph, others with such glary substance as
was found in the Abdomen, and others with Stuff
resembling new Cheese — The other history was
communicated to me by Dr. Drummond, who ex-
tracted a vast number of Hydatides from the internal
Substance of the Womb of a Lady in the Country —
Now all these Hydropes clausæ are difficult to
discover, all that we have to judge them by is, the
Constitution of the Patient, Functio Lesa of the
part, the swelling and sometimes rolling that is found
in the Abdomen. Indeed if it become very large & dis-
tend the Abdomen, violently, the fluctuation of the Water
may be felt — The Prognosis is not very favourable for
the Patient may carry such a Tumour about with him
a long time without any considerable inconvenience
yet 'tis very difficult to remove, and upon any violence
used

used to it it is ready to burst, and occasion em-¹⁷⁷
scites of the worst kind to dry up. or sometimes these
Hydatides break off entirely from the parts to which
they are attached, and float in the Abdomen, otherwise
their thinner parts evaporate or are resorbed, and the
Tumour turns Athumatous or Steatomatous, which
seldom or never yield. The Cure of them is entirely
performed by internal Med^l and these such as are
punctured at in the Cure of an Ascites, unless when
the Tumour is very large and adheres to the Peri-
toneum, or when the Matter is lodged within the Ca-
vity of the Uterus.

In the first of these Exceptions, the Matter may
be let out by Perforation, as in the Hydrops Peri-
tonei. In the second, the internal Os Uteri is to be
relaxed with Fomentations, Injections &c. —

N. B. The Surgeon from time to time is to force open
the Os Tineæ with his Fingers, Speculum Uteri, or Forceps
If the Water is unconfined, it will upon the least open-
ing give way. If the Hydatides adhere to the internal
surface

178. Surface of the Womb, the Surgeon must introduce his hand in order to bring them away.

Hydrocele

Under this denomination we comprehend all watery Tumours of or within the Scrotum, so that it may well be divided into three Species —

1st When the Teguments of the Scrotum are affected which is known and cured the same way as an Anasarca

2^d Upon a violent Ascites, the Peritoneum yields at the rings of the Muscles to the pressure of the Water, and is pushed as far down as the Scrotum. This we soon distinguish by the preceding Asci-tes, by the beginning of the Tumour at the rings of the muscles, by the turn of the water into the Abdomen, by the preping of the Scrotum, or when the Patient is laid in an horizontal posture, and fluctuation easily distinguishes it from a true Hernia — The Prognosis is to be drawn from the nature of the Ascites. The draining of its Source is
it's

its effectual cure. Some indeed propose to make ¹⁷⁹
a seton in the Scrotum, by which they would dis-
charge all the water in the Abdomen, but then
they run great risque of a Gangrene in the Scro-
tum. Others pretend to confine the Water in the
Abdomen by a tight ruptured Band applied on the
rings of the muscles, but that won't do it, unless
the Abdomen is emptied and then indeed such a Band
is necessary to prevent the falling down of the Omen-
tum or Intestines into the relaxed Peritoneum
where the water is lodged. —

The 3^d. Sort of Hydrocele is, when the Water is
contained between the Tunica Vaginalis and Al-
buginea, where it may be collected in the same
manner as in the other Cavities. The Signs of it
are, a gradual Swelling of the Scrotum be-
ginning below, and rising up, it feels soft, and
smooth, and if the Tunica Vaginalis be not very
much stretched it fluctuates, the weight of it
always bears upon the depending part — The

180. The body of the Testicle is either not to be felt with the finger, or else it appears floating in some Liquor, by holding a Sandle upon one Side of the Scrotum, while you view the Tumour on the other side, it seems clear and bright.

By these signs it appears easily distinguished from any other Swelling of the Scrotum. From the Enterocoele and Epiplococle, by its beginning below and not at the Rings of the Muscles; From the Pneumatocele by the weight that is always found in the depending part. From the Variocoele or firuocoele, and Sarcocoele, by its smoothness, softness, clearness and want of Pain.

The Prognosis is the same as in other Dropsies, for unless the water has begun to corrupt, or the Patient is of an ill habit of body, there is no hazard of it. —

The Cure consists in a right Diet, proper medicine and topical Applications which are all much the same as in an Edema, and lastly manual operation

Operation, or Perforation, which is done either with a Trocar, on the most depending part, while we endeavour to keep up the Testicle and stretch the Scrotum. After thus draining the Water, with proper Medicines and Applications we endeavour to prevent any further Collection, tho' they are seldom effectual after the Operation, for in a short time the Operation is as necessary as ever. The reason of this is, that there is a fist formed for the reception of the Water, and you are not, for fear of bursting the Testicle, make a sufficient compression to force the Sides of the Bag close, therefore some have called this the palliative Cure —

The 2^d. Method of Operation or the Radical Cure is, To cut the Tumour with a Lancet, making a large Aperture. When the Water is all evacuated, with crooked probe: pointed Scissors, the whole Cistitis is laid open, and by Digestives brought to Suppuration, then cured as a common wound —

We must observe whatever Method we take to cure

ure this, the Scrotum is always to be suspended with a good Bandage. For Observations on this Disease see Hildan Cent 4. Obs. 65, 66, 67, 68.

Hydatides.

Under this kind of watery Tumours Hydatides might be comprehended. They are roundish Tumours full of water, enclosed in one or two proper Membranes, occasioned by the distension of some Follicles of a simple Gland; these very seldom appear outwardly, and then they require the same Treatment as other incusted Tumours, and therefore I shall pass this Malady over at present.

Ranula.

Is a soft whitish Tumour full of mucus, which sometimes appears under the Tongue, causing a great difficulty in Deglutition and Speaking. By the Greeks it is called *Batzaxos*, by the Latins *Ranula*.

By the Description Authors give of it, it plainly seems to arise from an obstruction of the inferior Salivary

Salivary Ducts, which come to be sometimes prodigiously distended, by the constant propulsion of the Saliva from the Glands. This disease is not very dangerous, unless when the swelling has been so great as to bring on a Gangrene on the surrounding parts, as when by the long stay of the Matter in the Duct it has indurated, or the neighbouring Glands have turned Schorious or Cancerous, in which cases the Patient runs a considerable risque; otherways, as I said before, the Patient is in no great danger, tho' it is always (if of any bulk) tedious to cure —

The Cure consists in opening a passage for the obstructed Matter, in delergering and contracting the enlarged Duct. Several Authors propose to attenuate the contained Liquor, and by stimulating the containing parts, to force a passage by the Contraction, and therefore rub the Tumour with Pepper, Zingib. Pyrethrum, Salt, and such acrid medicines, but except the Obstruction is very slight

184 slight, this will not answer, and at the same time they may give rise to an Inflammation, therefore we had better follow the other method of opening the Tumour as near the natural Aperture of the Salivary Duct as possible, with a Lancet, Bistoury, or actual Caутery, which some prefer to simple Cutting, because an Orifice made with the Caутery is not so liable to close up as when made by Incision, and that before the Duct has recovered its former dimensions, or is in a Condition to force out the Liquids thrown into it.

As soon as the Duct is prepared, the Liquor in the Tumour is expressed, the Duct is cleared of any glutinous Parts that may adhere to it, by detaching Injections, and by Bandage and Corroboratives the Duct is assisted in propelling the Saliva; if the Duct return to its former small Diameter, there is less hazard of a relapse into the Ranula, but if the Duct cannot be brought to that, there is constant hazard of the Tumour returning by the Saliva stagnating and thickening in its passage, therefore the Patient

Patient in this last Case should every now & then compress the Duct with his Finger, and keep the Orifice open by expressing the Liguor. —

Flatuous Tumours.

Immediately after watery Tumours Authors generally treat of Empysematous Tumours, Inflammations, Flatuous Tumours, or morbid Swellings from Wind, and not without reason neither, since the like Constitutions are subject to both the Tumours in the same places and require near the same treatment.

In general any Tumour where the parts are distended by wind and Air may be termed Empysemata, just as Adema signifies any Tumour from Serum or Lymph. But then the Denomination of Flatuous Tumours is applied to a particular Species, they mean by it a white cold Tumour, which does not pit when compressed, if struck 'tis said to sound, sometimes 'tis painful other

186 other whiles not, for the most part attacking the articulations —

The Cause of these Swellings is said to be Air, the generation or production of which the several Theorists have endeavoured to account for from their general Hypothesis, as you may see in Deleus Enclorped. Lib. 5. Cap. 11. For my own part I cannot find in any Observer any instance to prove so much as the possibility of an Airy Tumour, except in Wounds of the Thorax, and once in the *Mémoires de l'Acad. des Sciences*. Jan. 1704 where the real Emphysema appeared in a Hydropical person first on the right Cheek, and descending affected the whole Trunk of the Body, as was plain from the clearness, lightness, and sound of the Swelling before death, and after it with the first Cut of a Bistoury upon the Abdomen a putrid Halitus burst out and immediately the whole Swelling disappeared. This extraordinary Case seems to have depended on the same that makes Animals swell after death, viz the Putrefaction in themselves

themselves. begun —

187.

The common Account, when Authors come to give Examples, is widely different from this Case, for their flatulent Tumours are confined to narrow bounds, they have no Sound, seldom so much as a Crackling, when opened there is no flatus observed, nor does the Tumour immediately disappear.

To evade these Objections they commonly tell us, that the Tumours are never pure, but have a mixture of Pituita with the Air. To me it would seem to differ from the Oedema only in this, that the matter is grosser and thicker, and deeper lodged, even so that the bones are sometimes affected and the swelling is more confined of consequence. If the Tumour is small, superficial and without pain, there is little hazard in it, and if on the contrary, it is large deep, and painful, it may prove difficult to cure, and perhaps bring Inflammation Suppuration and other troublesome dangerous symptoms — The method of Cure is the same as in an Oedema from a Lentor in the Fluids viz. by
powerful

188. powerful internal, resolvent and deobstruent medicines topical Applications must be of the same kind, in form of Fomentations, Cataplasms, Ointments or Plaisters, for in this Case there is no such risque in relaxing the Teguments, or obstructing the pores as in an Adema. These Medicines I had occasion to mention in the Circule, and in the resolution of a Phlegmon. —

Emphysema.

The true Emphysema which frequently happens on Wounds of the Thorax viz those that penetrate the Cavity, I took particular notice of when formerly on these Wounds.

Tympanites.

The parts of the Body most subject to a swelling from the rarefaction of the Air collected, is the Abdomen, which may happen either from the Air which we swallow down, escaping out of our Stomach and Intestines, by destruction or separation of their Fibres from too violent Distension or Relaxation from an Abuse

Ascites, or Corrosion, or Gangrene, or else this Air 189
is a consequence of the corruption of some of the in-
ternal parts, or of Water in a Dropsie, for Boyle
has plainly proven by repeated Experiments that
corrupted Substances do as it were generate Air.

The reason of this Phenomenon may perhaps be
by the intestine motion which is observable in cor-
rupting Substances, the small parts of which they
are composed are broke asunder, and the included
Air is left at liberty to act which it did not
before.

The Symptoms of the windy Disease (which is
known commonly by the name of Tympanites from
the resemblance the Abdomen has when thus affect-
ed to a Drum) is commonly with the Ascites, with
these distinguishing marks, the Patient feeling
no such Weight on the depending part as in the
Dropsie, the Abdomen is equally distended, nor do
the different postures of the Patient make any sen-
sible alteration in the Swelling, the Sound is stronger
when

192 when it is struck, but the fluctuation less. —

The Prognosis is much more unfavourable than in the ascites, as is plain from the Causes assigned, since the Viscera cannot yield so much, nor the Waters be corrupted without immediate danger to the Patient.

The Cure of the Tympanites and Ascites are much the same, and therefore I refer you to the last without which the other is seldom found.

Pneumatocoele.

The Air included in the Abdomen in a Tympanites, after the same manner as the Water in an Ascites, forces the Peritoneum to give way at the Navel, or rings of the Abdominal Muscles, and there occasion considerable swellings, which from the Contents and place where they are formed have got the name of Pneumatocoele, tho' sometimes the last is no consequence of a Tympanites, but is proper to the Scrotum. What has been said on Dropsies in these places & on the Tympanites in general may save us the trouble of entering into the particulars of these —

Schirrus

Immediately after the *Oedema* Authors generally treat of a *Schirrus*, and very reasonable too, since the Tumours in those Vessels that convey a thinner fluid than Serum or Lymph are not observable, till once the Folliculi of the Glands, where smaller Vessels do evacuate themselves, are affected.

A *Schirrus* is defined, a hard, immoveable, indolent, glandular Swelling. Its hardness & situation in the commonly larger Glands distinguish it from the proper *Oedematous* Swellings; the Immoveableness of it, i. e. its adhering to the neighbouring parts so as it does not as it were feel separate from them prevents its being confounded with those called *Included Tumours*. The Indolency of a *Schirrus* proceeds from its having little or no sensation which is sufficient to distinguish it from the inflammatory kind.

The Cause of it is plainly an Obstruction in the Folliculi of the Glands, or at the extremity of the Secretory artery.

192 Arterys, by which the grosser part of the fluids is
is firmly impacted while the thinner parts are car-
ried off by the Lateral branches at the same time
there is no violent Impetus of the Liquids too
quickly to distend the Vessels, so as either to burst
them or create pain. You may remember in the
history of a Phlegmon, I endeavoured to account
how a Schirrus might be the consequence of an In-
flammation in any Gland by ill management, viz
by diminishing so suddenly the quantity of blood
by evacuations, that its motion becomes languid, &
at the same time by repellents constricting the
Vessels of the affected Glands, by which the grosser Li-
quids are impacted and the thinner excreta, may
even without any preceeding inflammation a vio-
lent and sudden constriction of the Vessels in a glan-
dular part may give rise to a Schirrus, as nurses
to their cost experience, upon exposing their Breasts
too much, and frequently people have paid dear for
laying them bare to the cold — A Weakness or Im-
activity of the Vessels, either from an external or
internal

internal Cause, by allowing a Collection of matter which may coagulate, may have the same effect, especially if any other Cause is adjoined, which may make a greater derivation than ordinary to that part, as in a Woman after Child bearing or giving Suck. —

Upon stopping any useful Evacuation, such as the menstrual in Women or the Hemorrhoids in Men, w^h Evacuation not being supplied by some other, the obstructed matter if conveyed in any quantity to the Glands, where the Vessels are very small and vast Circumvolutions will there be deposited and give rise to this disease, especially if there is a Lentor in the fluids at the same time. Hence when Women become so old as to be deprived of their menses, they are so subject to this disease as is confirmed by all Observations. A Lentor or Lowness in the Blood is very apt to produce this disease, hence the melancholic bilious people are so subject to it, unless it is prevented by the Piles or such Evacuations.

Eating of such gross Victuals as our Solids are not able to assimilate to the rest of our Liquids will cause

194 a Lentor, hence a Schirrus after; and very often a disposition runs in the Blood, as the common saying is, or this handed from father to son, and commonly observed in the Scrofula, or Cruels. —

The Prognosis is taken from the continuance of the Tumour, if of long standing it will not so easily cure; from its bulk, the larger the worse; from the Constitution of the Patient, if he is Cachectic, or it runs in the Blood, no great matters can be promised as to the Cure; from the place the Tumour has seized, if any of the Viscera, or any part where the hands and Medicines cannot come at easily, or near large Arteries or Veins, so much the worse; from the Symptoms that attend it, such as roughness, and inequality with pungent pain in the Tumour or near it, which are signs of a Cancer; perhaps its attended with Atrophy, Inflammation or Edema in the members below from the compression of the Vessels which may be of dangerous consequence. — In the Cure we must
endeavour

endeavour to correct the Cacothetis of the Patient, to remove the obstruction of the affected Gland and by all means to prevent the Schirrus degenerating into a Cancer.

The first, is the Physician's business, To remove the Obstruction should be given such internal Medicines as are of the most penetrating nature to resolve the obstructions, but at the same time give not too great an Impetus to the Liquids, such as the Decoctions of the woods with a few doses of the Aquil. alb. now and then. —

If the Tumour is of a short Continuance, without any sign of a Cancer, and is not perfectly compressed, as we know by the remains of Softness and Sensibility it still feels, we try the Resolution by the application of Emollients and Resolvents, the former are never to be used by themselves, because they relax the Vessels too much and allow a new flux of Liquids to the part, which makes the Schirrus larger, or of turning into a Cancer, as we see in three Examples in Hildan. Cent. Obs. 89.

JH

196. If the Tumour does not yield to Resolvents, which we had occasion already to mention, and is in a part where it may be safely and wholly cut off, it is to be done. This Incision I shall be more particular of, when we come to a Cancer —

If the Age and Constitution of the Patient forbid the operation, or if the part in which it is, or its adhering to the neighbouring parts make it dangerous, and at the same time has the least appearance of a Cancer, which we know by the Change of Colour by the Hardness and Inequality, Itching and Pain, neither of the former Methods are to be used, we only endeavour to prevent its further Increase by shunning every thing that may irritate the Tumour, or give the least Rise to an Inflammation for which purpose all the Menstruals are to be strictly managed, and very regularly observed; no emollient, suppurative, resolvent, or caustic application is to be allowed, the part is to be kept as soft and easy as possible, by covering it with soft Linnen, or rather Shambo Leather may be applied spread with Ungt.

Ing^t Alb. Diapentholigos Empl. de minio, or 197.
Bals. universale, by which means some people have
lived a great many years, without any other Inconve-
nience, than being confined to a strict regimen.
Hilden. Cent. 3. Obs. 36. 37. Cent. 6. Obs. 75 has
a great number of such Cases.

Cancer.

If a Patient labouring under a Schirrus be of a very
ill habit of Body, and not before corrected, or if he
transgress in any of the Nonnaturals, or by any blow
or hurt, or any aoid application the Schirrus is ir-
ritated, it inflames about the sides, the Teguments
of consequence begin to turn red, afterwards decline to
black, hence first a Titillation or Itching, then the
internal Vessels are much stretched, and hence a pun-
gent pain, the internal Veins are much compressed,
hence the external cutaneous Veins appear very tu-
mified, and frequently the Tumour increases tho'
unequally, and hence it feels so uneven. This dege-
nerated Schirrus is named Carcinoma or Cancer.
It has got its name either from the resemblance the
knotty

198. knotty turgid Cutaneous Veins has to Crabs Claws when they heave from hold of any thing, or from its commonly beginning externally, and running deep backwards as the Crabs crawl.

The Cancer is distinguished into Occult & hidden, manifest or open, and ulcerated. The difference is plainly this that the one is till contained within the folliculi of the glands, and Teguments, whilst the other is broke outwardly. The Occult answers the description given, but to make up the ulcerated Cancer, must be added that a then Ichor tapers out at it, which Ichor is so very sharp, that it corrodes and destroys the parts which it touches, so that in a little time the Orifice enlarges the lips of it swell, are retracted, send out a fetid Corrosive Series, & a constant racking pain is felt —

The only true cure for this is Excision or Extirpation, if the Patient can bear it, if the Tumour is in such a place as will allow the Operation, if there is not reason to suspect some of the internal glandular Viscera to be affected with the same disease, for in this case such an Operation would hasten the patient's death —
If he

199
If he labours under a (acochymia), that is previously
to be corrected, or even without that supposition there
is a necessity of preparing his Body after the common
way in other operations to prevent Fever & Inflammation.
The manner of Excision differs according to
the parts that are affected and the largeness of the
Tumour. If it is in such a lax pendulous part
as we can easily introduce our Instruments, below
the whole Cancer, as for example, in the Lips or
Cheeks, or Point of the Tongue, with one or two or
three Cuts of a pair of Scissors, we easily bring it
away; any where else, where the Tumour is small,
we make a longitudinal Incision on the Teguments,
if that is not sufficient, one in form of a T will give
more Liberty; If this will not do it, then the Crucial
is to be made; After any of these the Tumour is care-
fully to be inspected, and taken out entire, for if any
part of it is left, there is almost a certainty of a re-
lapse — But if the Tumour is very large & deep,
these methods would be inconvenient, and very tedious,
and a great deal of loose useless Teguments would be
left

200 left, therefore we are obliged to take it away Teguments and all.

After the Cancer is extirpate, the Dressings are the same as in a simple wound with loss of Substance, and cured with all haste, and not encourage a long suppuration, as many Authors advise, for that way the Patient is thrown into a Consumption, or it brings on a new Cancer. If there happens to be any small schirous Tumours near the place, they are to be cut out by Inucleation.

In the Cases excepted in the Operation, viz. where the Patient's Constitution and Strength will not allow of it, as in old emaciated consumptive people, or where the Situation of the Tumour makes it impracticable, as immediately upon very large Vessels or Nerves, or reaching into any of the Cavities, or where there is reason to suspect the glandular Viscera are affected, we must only palliate the disease, as was directed in the history of a Schirrus, and by anodyne med^s stupify the pain that is excessive.

Some Authors describe a small Cancerous Tubercle
which

which they pretend differs from this we just now 201
treated of. It often appears at first like a small Pim-
ple with great Itching, and being rubbed it turns ex-
tremely painful, tickles out a then Itch, spreads,
and if dealt roughly with, degenerates into the
worst sort of a Cancer. To this they give the name
of Noli me tangere, because it becomes still worse
and worse, the more it is handled. The Cure of it dif-
fers nothing from the former, nay, several Practi-
titioners use more freedom with it than the other,
inasmuch that Wiseman used to burn it out with a
red hot Iron. The Excision however is much better.

Struma, Scrophula, Excrucles or King's Evil —

These are commonly treated of in different Chapters.
from the Schirrus, but in my opinion they may be
brought under the same Class, nay, they differ so
little from one another, that 'tis no easy matter to
distinguish them. I know indeed a great many Mo-
rdeus have crammed in a great many diseases under
the title Struma, such as the Incurable Tumours,
the

202 The Phagedenic Ulcers, Carious Bones, and Spina
Ventosa, but if we keep to the description of those that
first that imposed the name, and what they were
pleased to make of this Tumour we will plainly see
how near it is related to a Schirrus. Hippocr. de
Gland. expressly numbers Scrophula or Struma among
the diseases of the Glands. Celsus Lib. 5. Cap. 28

S. 7. defines Struma a Tumour in which a sub-
stance like Blood and Pus rise up like Glands —

By Struma then we understand a Schirrus which
more generally happens in the conglobated that conglom-
erated Glands; it feels smoother and is more move-
able than a true Schirrus; the Body of the Tumour
may be brought to Suppuration, whereas the other
never suppurates, the Follicle is more apparent than
in the Tumour which has been already described as
a Schirrus. This is very frequently occasioned by some
external Cause or particular disposition of some one
part, and is mostly in people come to age, whereas
the Struma is constantly attended with a mala-
Temperies, is often preceded by a remarkable disorder
of

of some of the Viscera, and seldom attacks any 203.
but young people and Children. This disease de-
pends entirely upon a Cachexymia, in which 'tis
not unreasonable to think that the ill concocted
part of the Mass of our Liquids should be obstruct-
ed in its passage thro' the Glands, where there is
such a prodigious number and Circumvolution of
vessels without any considerable muscular motion
to forward the Course of the Liquids. The Laxity of
the vessels and the consequent want of Solidity in
the Globules of the Fluids of those Subjects that are
liable to this disease, may sufficiently, as I
think, account for these swellings, their Torseness
and inclination to suppurate beyond Schirri in
people come to age and of confirmed strong ves-
sels. —

The Prognosis here is not very favourable, for at
best the Cure is a tedious difficult work, and if it is
hereditary or attended with a long standing Cachexia
if any number of these glandular swellings appear,
all

204. all our medicines are baffled, and sure no wonder when there seems a necessity as it were of changing the whole Frame of the Patient's body; when the parts affected are so remote that there is the greatest difficulty of access for the medicines, when a sort of Cistula defends them from external Applications, if we shall happen to come at it by Suppuration, that Cistula must be destroyed.

The Cure depends mostly upon internal Meds. that correct the Patients Constitution; the most efficacious I know are, the Woods, Mercury, & Sulphur, with a good easy digested Diet —

The Chirurgial Treatment is much the same as of a Schirrus, only that we may use some more freedom with the Struma as not being so liable to turn Cancerous. By the strongest Resolvents we first endeavour to discuss them, if those fail we cut them out entirely, as was directed in the Cancer. If they begin to suppurate, which we know by a late preceding Inflammation & their softning by suppuration, we

we endeavour to encourage the Suppuration of 203
the whole Tumour, then open them as a common Abs-
cess, and by Escharotics and Digestives separate the
Folliculi, taking care however not to fret them too
violently, lest they degenerate into a Carcinoma, &
Lastly they are filled up and cicatrized as an Ulcer
by Symplocosis.

You see, Gentlemen, I have not so much as men-
tioned any of the old Women's specific Applications,
nor given the Kings of France or England the whole
burden of the Cure. For the truth of the Matter is
I know, little or nothing to my own Experience or
Convincement of the Efficacies of the one's Medicines
or the other's Touch. Yet I am very far from de-
tracting any thing from the voracity of a great
many good people and honest Writers, who have
pledged their Faith to maintain the powerful Ope-
ration of the King's fingers, Bleeding, or Gold.

Fungous Excrescences.

There are often fungous Excrescences that sprout out
in

206 in several parts of the Body, which plainly answer to our Definition of Tumours, but are not easily reducible to any of the Common Genera. That which they nearest approach to seems to be the Schirrhus, for thus they seem to agree with it, that glandular parts are most subject to them, that they are mostly at first insensible, when irritated they are apt to become Cancerous, but then they want the hardness and firm compact structure and including folliculi of a Schirrhus. —

The first of these I shall mention is the

Polypus Nasium —

Which is a Cancerous like Excrecence; within the Nose, with a narrow Root, commonly attached to some of the Bones in the superior part of the Nose, stretching itself broader either down into the nostrils, or backwards into the Fauces. It impedes the Patients breathing, sometimes by its bulk swells the nose, and if it descend backwards, it makes the Deglutition difficult; yea sometimes there is the greatest

greatest hazard of the Patient being suffocated by 207.
its falling down upon the Glottis, as in the Case
mentioned by Tulpinus Lib. 1. Cap. 26. They are dis-
tinguished by the Colour, for some are whitish, and
of a pale red, others of an intense red, others livid
and lead coloured, and then the Bulk, Progress &
Consistency, whether hard or soft, are remarked.

The Rise of this disease seems to be an Obstruction
of the Glands and Vessels of the membrane that lines
the internal Substance of the Nose, and a consequent
protrusion of the membrane from the congestion
of the Liquids and elongation of the Vessels at the
obstructed part, as appears from the resemblance
of the membrane of the Nose and that of the Tumour,
from the glandular texture of the Excrecence and
great number of Vessels observed in it, hence the
different Colours of it are easily accounted for; the
larger the Vessels are, the redder the Colour is ob-
served, and if the Blood begins to stagnate or cor-
rupt, the Lividness appears —

The

208. The discovering the Polypus by the Eye after the description given is so plain that no Rules need to be laid down for the discovering of it.

The Prognosis, besides the general Observation of the Patient's Constitution, Age &c, is taken from the preceding Diagnosis. If the swelling is small, not high coloured, without pain, and stretched forwards, there is not so much danger, nor is it so hard to cure, as if it were large, painful, and falling backwards: Such as are of a livid colour and very painful are not to be meddled with, for they are beginning to turn Cancerous, & if irritated, soon will become compleatly so —

The only relief to the Patient & Cure of the Disease is, by removing the extraneous Body, which is done either by Excision, Ligature, Exsion or Evulsion. In all of them the Patient's Body should be first prepared by proper Evacuations, for fear of any Inflammation, which the pain we are obliged to put the Patient to might occasion —

The

The Excision or Eating away of the Polypus is performed by guarding the internal surface of the nose with Plaisters shut in betwixt it and the Excrescence while with the Potential Caustery, Butyr. Antim. or some such violent Caustick, we destroy a part of the Swelling. From time to time this Operation is to be renewed, till we have consumed as much as we can come at, observing every time as soon as the Caustic is taken off, to wash away the remainder of it that may still be adhering, with warm water, lest it afterwards attack the sound parts.

Some Authors propose by the help of a pair of Forceps, to introduce a thread formed into a Noose or running knot, to the very root of the Polypus, then pulling the two ends of the thread, this straitens the Excrescence so much in the Noose, that it mortifies and falls away, but unless these Gentlemen thrust one end of the thread down to the Fauces, & there held it, I cannot imagine how they ever should be

210 be able to straiten the Noose by pulling both the ends into the Nostrils.

The Excision may be done either with or without a Ligature. Celsus. Lib. 7. Cap. 10. proposes to extirpate the Polypus, by sliding in a small cutting knife, and with that to cut it off by the very Roots, shunning the Bones and Cartilages as much as possible, which are not easily avoided. Besides, there is hazard of the Patient losing his life by the Hemorrhage that may follow and is very difficult to stop, because in this place we can neither use Compression nor Ligature, as Escharotic medicines may be of the very worst consequence, the parts being so very sensible, and the bones being so little covered, very spongy and thin. However, we are sometimes obliged to risque this viz When the Polypus comes down upon the Velum pendulum Palati, so that the Patient every moment is like to be suffocated, and at the same time the Excrescence adheres so firmly to the neighbouring bones, as we learn from

from Garanges Cap. 38. was practised with success by Mr. Petit.

The Method of Excision by Ligature is proper to Mr. Arnan. He to prevent Hemorrhage chuses to destroy the Polypus after this manner, with a pair of broad pointed roundish Forceps he takes hold of the Tumour, and gently pulling to him draws as much of it without the Nostrils as he can, then ties that part and begins again to stretch it further, till he has tied as much as he can venture to draw out without tearing, then with a pair of Scissors snips off all below the uppermost Ligature and by the Suppuration and Escarotus consumes what remains. —

The Evulsion is commonly thus performed. A pair of roundish Forceps is introduced into the Nose as far as the Operator can, to come nearer the root of the Polypus, which he takes hold of, to make the Grip the former a ring is made to slide upon the Forceps and to straiten them; when a sure hold is got of the
Exarescence

212. Excrescence, the operator twists and draws till he pulls away the Polypus. The Hemorrhage that attends this way of operation and the violence which must be used to the parts to which the Polypus is attached, makes this way of operating dangerous tho' in these cases where the Polypus descends in to the Fauces, 'tis the only way we can pretend to extirpate it, and has been done successfully. Witness the above mentioned Observation of Tulpus Lib. 1. Cap 20 and in the Memoires de l'Acad. des Sciences 1704. there is just such another —

Sometimes the Polypus prepes down the Velum pendulum Palati without appearing behind it. I remember one Case Boerhaave told us, where the whole mouth was filled with such an Excrescence, when it happens, that membrane of the Palate must first be cut to come at the Polypus, and then the Excrescence is cut out or pulled away, as Mr Petit did in the Operation quoted from Garang. Which soever of these ways the Polypus is removed, there
always

always remains some root of it, or the membrane is so much relaxed, that it is easily again protruded, and gives rise to a new Polypus, wherefore the suppuration is to be encouraged, and afterwards by Astringents, or very gentle Escharotics, the Vessels are to be strengthened and contracted —

Epulis & Parulis.

The Gums are subject to such another Sarcrescence which is called Epulis, but this commonly proceeds from a Scorbute or Pocky Constitution, which must be corrected in order to the cure, and the Tumour must be diminished by Astringents & Escharotics —

The Parulis is exactly akin to this, & is another such Fungous Swelling of the Membranes of the Gums, which often hazards a Caries of the Bones —

The small Fungous Sarcrescence that appears on the Glans in men, & at the Entry of the Vagina in Women which are so commonly known by the name of Shankers, I shall not trouble you with a detail of as being a symptom of the Malady Venerea, which I don't design to touch at just now —

Sarcocoele

Sarcocoele.

The Testicle upon any bruise, hurt, or Obstruction in its Vessels, is very liable to a Hypersarcesis, or over-growing of the flesh, as the Ancients called it. That is, either a Spongy fungous sort of flesh sprouts from the Testicle, or its membranes. This glandular body is affected with this obstruction so that it becomes Schirous.

Either of these Tumours within the Scrotum is reckoned among the Ruptures, and has got the name of Sarcocoele. This disease is distinguished from the other false Hernia by the Hardness, compactness and weight from the true Hernia by its beginning below and rising upwards.

The Causes of it are plainly the same as of a Schirrus and Polypus.

The Prognosis is taken from the largeness, long standing, and concomitant Symptoms of the Tumour together with the Patients Constitution — &c. It is plain that a small recent Tumour of the Testicle without

without pain, or any other parts affected, in a young otherwise healthy person, may give greater hopes of a cure than if the swelling was monstrously big and of a great many years growth, attended with racking pain and varicose distension of the Veins in an old crazy Constitution. However I must tell you, at best 'tis troublesome to cure, because of the great difficulty both external and internal Medicines have to operate on the Testicle.

The Cure of it is much the same as in a Variocoele or by the strongest resolvent and discutient med^{ca}. Pulv. Rad. Ononidis or Rest: harrow is esteemed by some a grand Specific when taken internally, particularly by Scultetus in his Annotat. Chirurg. Obs. 74. affirmed that he had cured a great many labouring under the Tunica Carnosa with this Powder, and commonly Gummatous Resolvent Plaster, He gives ʒi of this powder to a dose to be taken in the morning ex haustu vini Absynthitis —

Several Authors propose to hinder the flux of the matter

216. Matter to the Testicle, if not to drain it entirely by means of a Seton put pretty deep into the scrotum, which might be tied and kept running for some time, unless that the pain that would follow it would do more harm than the rest would do good, oblige us to remove it.

If the Tumours turn Cancerous, as we may know by the supervening signs of Inflammation, by the racking Pain the Patient feels, by the roughness and inequality of the Swelling, there is no other cure for it but Castration, or Excision of the Testicle for I cannot think but it is a very dangerous Practice which some propose upon the fungous Exuberance of the Testicle turning big, to open the scrotum and cut off as much as they see convenient from the Tumour, and afterwards to destroy the rest by Suppuration, for the parts that are extremely sensible cannot but be very much irritated, whence the very worst Consequences, as Fever and its Concomitants Inflammation or Cancer may

may be expected. —

I remember to have seen a Patient in the Hotel Dieu, who by the Separation of the Scrotum from a Gangrene, had his Testicle laid bare, but the pain was excessive, & in a little time killed him. — But to return to our Operation, there is, besides the Weakness and dangerous Symptoms that the Patient perhaps labours under, one Exception against performing it, even when the Testicle is Cancerous, and that is where the Spermatie Vessels are affected with Varices further up than the Rings of the muscles, which by the Touch may be discovered, for in this case the Vessels above the Ligature which we are obliged to make, are so ~~to~~ much dilated, that their sides will not collapse so soon as the Ligature, will drop away by the mortification of the tied parts, consequently the Vessels will pour out the Liquids into the Cavity of the Abdomen, that is, he will bleed to death, without our knowledge or our being in a condition to help him —

Fungous.

Fungous Excrescences of the Anus.

The Anus is very subject to Fungous Excrescences, which according to their different Appearances have got different names bestowed on them, That is, if they grow out fleshy, with a broad base, they are called *Condylomata*, if with a small long neck, they are stiled *Ficuli*; if from any thing resembling a Cock's Comb they are called *Cristae*, if hard and uneven, they are called *Thymi* —

Their Rise and Cause is much the same as of other such Excrescences; The *Thymi* are the worst sort, as very ready to turn Cancerous, and adhering firmly and deep to the parts about. The others, unless irritated, are harmless enough but troublesome, hindering the Faces alvinoe to be expelled, the further up the Anus so much the worse.

By Astringents we endeavour to make them contract, if this method does not succeed, we cauterize them after the same manner as was proposed in the Hemorrhoids

Hæmorrhoids, from which these differ little in the 219.
Cure, except where they are attended with the Dox
or Scursy, which must be cured by a Physician,
before the Surgeon can pretend to do any great
Service:—

Several Fungous Tumours are found in the other
parts of the Body which are of much the same
nature with several of these described, and have
no particular names assigned them; I have seen
of them pretty near to the Ficus; others of a more
watery Texture, but their Cause or Cure differ lit-
tle from some one or other of these mentioned, I
shall not insist of them.

Incised Tumours.

The last species of Tumours which I mentioned
to discourse upon was the Incised kind, or such
as are contained in a proper Cyst or Bag, we
seem to be nothing else but the Folliculus of
some small Sympathic gland obstructed and
distended by the Collection of Matter separated
into

222 into it, while the excretory Duct is stoppt or is so small, as not to allow a passage for such Liquors as the Secretory Vessels have deposited, as appears from comparing the ~~Structure~~ of one of these Lymphatic Glands with one of the Cystic. These commonly mentioned with distinct names bestowed on them are, the Melliceris, Ulceroma, Steatoma, Talpa, Ganglion, Lupia, and Hydatides. They are all of them easily distinguished from other Tumours by their gradual increase, without any remarkable pain or discolouring of the parts. They generally rise in a globular form, unless the surrounding parts hinder or alter it. —

They are generally of themselves innocent i.e. without any great danger, but sometimes by Compression of the neighbouring parts may bring on an Inflammation, Gangrene, Ulcers, Abscesses, Immobility, Adematous Swellings &c. or if their contained matter either by its acrimony or quantity

quantity break the containing Folliculus, a
 tedious Ulcer, such as that of a Struma may fol-
 low, or if roughly treated they may become Cancerous
 The first three mentioned viz. Melliceris, Athero-
 ma and Steatoma differ only from one another,
 in consistency of the contained matter, whereof the
 melliceris is thinnest, and has got its name from
 some resemblance it has to honey. That of the A-
 theroma is thicker, and is of a Pultaceous Con-
 sistence. Steatoma is like congealed Fat, or New
 Cheese; Before these Tumours are opened, unless
 by their different degrees of Softness, we have no
 way to distinguish them. —

Talpa is the same as the former, only 'tis always
 in the head, and by the Compactness of the Skin
 there 'tis flatten'd often by its Compression arise
 ulcers, and is the occasion of carious Bones. —

Ganglion and Lupia are confined to the Tendons,
 above which they are felt, the Ganglion to those of
 the hands and feet; the Lupia is applicable to all
 the

222 the other incised Tumours upon the rest of the
Body. tho a great many Surgeons understand
by Lupus or Lupia a Cancer or fungous Excre-
scence. You may see it taken in the first sense
by Parey Lib 7. Cap. 20. and Mercur Lib 1. Cap. 1.
and in the last sense by Doleus Encyclop. Chirurg.
Lib. 1. Cap. 16. and Lib. 5. Cap. 8.

The Hydatides are watery Tumours, of which al-
ready, when on the Hydrops Pleurae.

The general Cure of them when little is, by re-
solvent Applications and Compression; if large
they must be cut away, as was directed in the
Schirrus. Therefore the old way of dressing with
some hard Substance, or giving them a strong blow
to burst the Cyst and then distinguish the
extravasated matter is now out of doors as en-
dangering an Inflammation, Gangrene or
Abscess — — —

Remarks

Remarks upon Mr. Monro's Course of Surgical Operations —

of Sutures.

He differs nothing in them from Mr. Garangeot, only he thinks, that in the Interrupted Suture the Threads should be different at every Stitch, and not as Mr. Petit would have it, that it be all one continued Thread, because that the Patient when he hears the Clap of the Scissors, thinks the Operation at an end, and his fright as well as his pain increases when he feels himself a second or third time pricked. But he thinks that the pain the Patient feels in drawing a long Thread thro' the wound is more than sufficient to balance this imaginary evil of the Patient, therefore they should be different threads —

Hernia.

Bandages that are ordinarily applied for the other
Hernias

224. Hernias will not do in the Exomphalos because of the motion of the Belly in Respiration. For if we should apply our Bandage in Inspiration, tho' we applied it very tight, yet in the Expiration when the Belly falls, the Bandage would be slack, and so the Intestine or Epiploon get out, and in Inspiration it would be pressed by the Bandage, and so an Inflammation and Gangrene might happen in it; therefore if we can get any substance that is elastic, that will yield to the pressure of the Belly in Inspiration, and in Expiration will recover itself, so as to press upon the Hernia, it will answer the Intention; for if we should apply any other bandage in Expiration and if it was tight, Inspiration would be very much hindered by it. Such an elastic substance is Sponge which is thus prepared for it. It is made up in a little Ball, and then fastened to a round piece of Pasteboard, with a piece of Linnen, then 'tis put on the Cavity

Cavity, for here is a small Cavity after the Rupture is reduced, and 'tis kept on with a Bandage. or the swaddling belt which is put about Children, for 'tis these that are most commonly troubled with this disease But if the Patient is an Adult, whose Inspiration and Expiration are larger, then this perhaps will not be sufficient —

I have invented a Machine for this made up of two Iron plates, fastened together by four spiral Springs, the plates are kept about the distance of two Inches from one another, but upon any pressure the Springs will yield, and they can be brought nearer one another, but that pressing Cause being removed, the Springs will recover themselves, and the Plates be at the distance they had before; to the undermost of these plates is fashioned a Cushion, like that which they make Rupture Bands of, on the outer plate are four Rings which are the Ends of the Screws, to which Straps may be fastened, two of which may cross

226 cross and go over the Shoulder, and the other
two cross and go betwixt the Thighs. But if
the Patient makes not much motion, one Cir-
cular Band may keep it well enough —
Castration.

After cutting the Teguments, he either separates
the Testicle contained in the Tunica Vaginalis
and Muscle Cremaster with his finger from the
Scrotum, which is easily done, or dissects it with
a strait Bistoury. He makes the Ligature of the
Spermatic Vessels included in the Tunica Vagi-
nalis, and does not dissect them from it, and when
the Spermatic Vessels are sore swollen, he looks for
them, puts a threaded Needle thro' under them, to-
gether with the Tunica Vaginalis, and so makes
the Turn first about one side and then about
the other as in Garangeot, and the Testicle is
extirpated with a pair of Scissors. —

Phymosis & Paraphymosis

These Operations are the same as in Garangeot
they

They may be performed either with a pair of Scis²²⁷.
sars, or Bistony Lachee.

Lithotomy

Lithotomy by the lower operation is the same
with Garanycot. The higher operation is per-
formed by cutting the Teguments with a straight
Bistony fastened with a Tape. The Bladder is
first injected with warm Water, by which it is
felt under the muscles and Teguments, and
continuing the Incision between the Musculi
Pecti. When the Bladder is laid bare with a
straight Bistony according to Messrs Douglas
and McGill, or according to Mr Cheslebon with
a crooked they open from the Fundus towards
the Os Pubis. When the aperture is not large
enough to let out the Stone, then the Fingers are
introduced into the Bladder and cut upon them
which is better than a Directory. Mr McGill
enlarges with crooked Suppans. The Stone is ex-
tracted with the Fingers, which is better than
the

228. The Forceps. The Wound is dressed the first Day with dry dressings and the other days with Digestives. —

This is by far the best way of operating, puts the Patient to less pain, and the wound is easier cured, tho' it heis sometimes in this place ill succeeded; but that was not owing to the method of operating but to the form of the Stone.

In one the Stone was very large and had a Notch, in the middle and a Bulb at each end. The Notch received the Os Pubis, so that it was so fixed that the Art of man could not extract it so that when the Patient was dead, the Os Pubis behoved to be sawn asunder before the Stone could be got out; and if the Operation had been by the Lower way, it would have been the same thing.

Fistula in Ano.

He agrees with Garangeot in the Operation
Vide Treatise of Tumours.

Extirpating

Extirpating of Cancerous Tumours

229

If the Tumour be large and firmly adhering to the parts below so that it cannot be moved, or if the Glands of the other parts of the Body be turned Schirrous, for Example, if the Breast be affected, and the Glands under the Axmpit be swelled, or if we suspect that there are Schirri in the Viscera, or the Tumour be large or near upon any large Vessel or ~~Artery~~ Nerve, so that it cannot be extirpated without destroying them, in this Case we are to let it alone, but if the Disease be local, we may perform the Operation, If the Tumour be small by enucleating as they call it. If the Breast be affected and wholly tainted with the disease, then we are to extirpate it wholly —

We take hold of the Tumour with one hand, pull it up, & then make a semi-circular Incision ^{half} round the Tumour, but no further than the Teguments, then get in our fingers and pull the Tumour from the neighbouring parts dissecting it at the same time with the

230 The History to see it from the parts. When the Tumour is wholly dissected you cut off the and Tumour all at once from the muscle below.

If the Tumour be loose, then we cut it off at once from the muscle below without Dissection —

If there be any Arteries they must be stitched, but if there be so many that the Surgeon cannot get them well stitched, then I would apply the actual Caustery. I would never apply the Vitriol button where I could get the other conveniently done, for the hot Iron stops the blood at once it goes no further than we design it should; the pain is but momentary enduring but for a short time, whereas the Vitriol button is a while in dissolving, and if the blood come out impetuously, it may wash it away from the Wound, and so the Blood would not be stopped, and then when it mells, it spreads very far, and makes an Eschar very large, and eats very deep, and the Pain endures very long, so that the actual Caustery is by far preferable —

After

After the Operation, we do not esquite along 237
suppuration, as is done by some, for by this the
matter is imbibed into the mass of Blood. ~~or~~
other swellings of the same nature occasioned.
The Dressings are the same as in Garangcot, the
Bandage is the Napkin and Scapular, or the
Star bandage.

If the Tumour cut out be small done by enucle-
ating, and there be no large cavity, then we
bring the Lips of the Wound together and stitch
them. If the Cavity be large then we adapt the
Segments by cutting them off if too large, and
lay them down as near as possible. —

Empyema.

The Incision is made according to the length of the
Body cross the Ribs. When the muscles above the
Ribs are cut, then the internal muscles are cut
exactly between the Ribs according to the length
of the Ribs. If the Lungs adhere very fast, we must
endeavour to separate them, but if we cannot we
must

must not use violence. Some in dressing put
 in a Tent into the wound with a thread at it w^h
 is very necessary; for sometimes it has been drawn
 into the Cavity. Tulpius in his Observations
 gives an Instance of one, that a Tent fell into
 the Cavity of the Thorax, and six months after
 he coughed it up. Others have a Silver Canula
 which is flat so that it may not hurt the Ribs,
 and crooked that it may not touch the Lungs, it
 has a Neck and Straps which go about the Body
 they cover it with a piece of Linnen or Spunge so
 that any thing may be hindered from falling into
 the Cavity of the Thorax, and at the same time an
 Exit may be allowed to the Matter. But these at
 the Tent are not convenient, sometimes they have
 occasioned Convulsions by the pain. Mr Petit puts
 into the wound a piece of Linnen pretty broad at
 the one end, and has a tail at the other, this
 he puts into the wound, applying the ~~Middle~~ Middle of
 the broad part on it, and thrusts it in a little;
 allowing

allowing the Tail to hang out, and the edges of the²³³
broad part about the lips of the Wound. For the
Dressings see Garangeot.

When all the Pus is evacuated we must close up
the Wound as soon as possible. If there be small
Ulcers in the Cavity of the Thorax, we must let
the Orifice remain open till they be healed.

Bronchotomy.

He performs it the same way as in Garangeot,
making Incision in the Teguments with a straight-
Bistoury, either with the edge next the Trachea or
the back towards it, by thrusting thro' the Teg-
ments, and cutting upwards, looks for the Interspace
of the Cartilage, and makes the Incision with a
Lancet rolled with a Fillet near to the point,
without dissecting the Muscles. He thinks it
may be performed with a Trocar, which ought to
be very sharp in the point and Edges, and the
Canula and it must be much shorter than for the
Paracentesis. This way is preferable because much
shorter

234 shorter, which is very much desired, because the Patient wants mightily to be relieved and likewise not so painful to the Patient. But there is one Inconvenience viz. the Trachea Arteria not being strong enough to resist the pressure, will yield, so that its sides will almost touch one another, so may be in hazard of being thrust thro' and likewise wound the Oesophagus, and so the meat may fall into its cavity; but indeed this cannot well happen, because the Patient cannot yet swallow. But to prevent this, with our Thumb & forefinger of the left hand we press the sides of the Trachea by which the pressure will be more protuberant, and so we may thrust in the Instrument without committing that great fault.

Fontanels are put in the Neck, and indeed oftentimes they do great service in many diseases; how this comes about 'tis difficult to explain, if it be not by diminishing the quantity of our Liquids, or perhaps a Serum or Pus is sent to these vessels where the Fontanel is made, like to that which is seen
Stone

occasioned by the making of it at first. There are
three sorts them

1.st That made by a blistering plaister which breaks
the Scarf Skin, which when like to grow in again
They put on some Ungt. Spispast. by which a Suppu-
ration is still continued; they call commonly a
perpetual Issue. They make them sometimes be-
tween the Shoulders or the last Vertebrae of the
Neck, sometimes at the Nape of the Neck. —

2.^d is made by Caustic; the method is common-
ly known. We must let it ly on according to the
Strength of the Caustic and thickness of the Skin
If it be in the head where the Skin is hard, we
must let it ly longer than where the Skin is
softer as the Arm. Some Caustic will work in $\frac{1}{4}$
~~face~~ hours, some $\frac{1}{2}$ some one, some two hours
When the Caustic has wrought apply some Basi-
licon or any suppurating Ointment when the Es-
char is separated, put in a Pea or some other
round body that will swell when imbibed by the
Humours, such as Rad. Hermodact. Iris or Spunge
Tent

236 Tent. When it does not run enough or spungy
flesh grows up, sprinkle on some Allumen ust. or
Precipit. Rubr. This is the common way of put-
ting them in, but the better way is with a Lancet,
which is by pinching up the Skin and cause the
servant do the same, cut it thro' then put in a
Pea, this is done at once, then the next day it
will be suppurating. whereas the other way is
3 or 4 Days before the Eschar separate There are
called commonly Issues.

The 3^d and last sort is the Seton There are two
ways of putting it in They commonly put them
across the Neck, but I think it would do better
that they were according to the length, because
more favourable for the running of the matter.

The 1st way is, by pinching up the Skin and
cause a servant do the same, either cross the
Neck or according to the Length of it, as you de-
sign to make it. Then with a large Impasthume
Lancet you pierce it thro' letting the aperture be
about three Inches distant, then without moving
your

your hand in the least, you put through the a-
pertures a Probe with a Silk Cord in the Eye of it
The Cord ought to be near as large as ones little
Finger. If you should move your hand before you
introduce the Probe, the Apertures would not answer
so you would have a difficulty in getting it thro'

The other way is by a Seton Needle which is as
broad as a Lancet, but longer and crooked. It has
a large Eye into which the Cord is put, the Skin is
thrust thro' with this, and the Cord brought along
with it. This is the best way. The Cord is rubbed with
some suppurating Ointment, both to make it go
thro' the better, and to cause it run. A Pledget of the
same Ointment is applied on the Orifice, when
you would change it, you rub the Cord with the
Ointment that is next to the Orifice, & pull it for-
ward into the Seton, and wipe that which has come
out. When the Cord has grown hard with the Mat-
ter, you lay another to the end of it, and so pull
it thro' ———

Bleeding

Blooding.

It is a general Rule in all Bloodings that the Ligature be between the Heart and the place you design to open. The Vein that is opened in the Neck is the Jugularis externa, very rolling under the Skin, so that 'tis difficult to open. There are several ways of stopping the Flood in this Vein, the Ligature is the common way. Some put it about the Neck and bring it before and twist it, which the Patient himself or an Assistant may hold. This stops the Flood well enough, but it ought never to be done to any Patient that cannot comply as Children or mad persons, because it may be bound too strait. An Instance of this happened not long ago & not far from this town, of a young Child, whom a Surgeon was bleeding, the Child was on the Mothers knee, the Ligature was twisted which she held, within a little she sees the Child's face turn quite blue, at which she cries, the Child is gone, and indeed it was so, for it was choked. Therefore in such a case it ought to be put on the Vein and come down obliquely over the throat and back, and ly below the
opposite

opposite Armpit, the same is to be done on the other ²³⁹ side. Some make the Compression without a Ligature, with a pair of Tonges which will do well enough. Whatever of these ways the returning blood is stoppt, to open the Vein the way that I do is this, I put my Thumb beneath the Vein to keep it Steady, & the forefinger above to make the skin tense, then the Vein is opened obliquely, not according to the length because it might Slip, neither transversely lest it be Cut thro'. It ought to be done at leisure, for 'tis not the best Bleeding that is done hastily; for I have seen when I have been opening this Vein that when I cut the Skin the Vein Slept away; so when this happens, I draw back the Lancet and let the Vein come to its old place, and then it can be opened easily, because there is nothing betwixt me and it. And 'tis a general rule in all bleedings that it should never be done too quick, for then we will very often miss —

Extraction

Extraction of the Polypus.

He differs nothing from that in the publick Lectures on Tumours. He notices, that when they are small recent, and of a pale colour, we may try the Cure by giving the strong Aperient and Disolvent Medicines such as Mercury and the Decoction of the Woods, to open the Obstruction, and externally apply astringents to contract the Fibres, and so to remove the Polypus. He tells us that by Evulsion 'tis sometimes very difficult. He instances a Boy in this Town who had a very large one that came out without his Nose, hang over his upper Lip; He was consulted about it, he tried to pull it out with a pair of Forceps, with all his Strength; and likewise there was a Cartesian League that was put about the lower part which others pulled by, so that I really thought we should have pulled away Nose and all together, by all this the Polypus did not yield one bit, therefore to ease the Patient as much as possible, I cut away with a pair of Scissors as much as

I could get hold of; It was so hard in the middle, that I could scarce get it cut through, afterwards when dissected I found that it was cartilaginous, in the heart, but where it had its root I cannot tell.

Sometimes an Hemorrhagy follows when it is cut or pulled away. 'Tis a common direction to prepare the Patients Body by bleeding & purging if the Patient is plethoric or any mala Temperies of the the blood to be corrected that is absolutely in the right. But in operations where there is danger of an Hemorrhage, I think it would be better to let alone the bleeding till after the operation; for if Hemorrhages then happen the Patient is able to bear them, for sometimes it happens that when the Patient has been thus bled before the operation, and an Hemorrhage coming upon it that the Patient had died for want of blood; and if there was no Inflammation in the part, nor any sign of a Fever, I would not bleed the Patient, altho' I had not

242 not tied before the operation, for it is certain that the greater quantity of good Liquids the Patient has, the sooner will he be cured. —

Hæmorrhages after this operation are very dangerous, as being very hard to stop, there being no possibility of coming at the place with the needle, or if we should put up strong Caustics or hot Irons up the the Nose, we should not miss to cause carious bones, and so Ulcers in this part would be produced, but if the Hæmorrhage is so great that the Patient is in danger of his life by it, then we are to stop the blood for of two Evils the lesser is to be chosen —

Operation of the Trepan —

After the Incision made, take the head of the Trepan, apply it on the bone, to see if it has room to move, If the Lips of the wound hinder the operation, take them off with a pair of Scissors, when this is done, make a mark in the Bone with the Pyramid of the head of the Trepan, then take the perforative Trepan, screw it on the Arbor, and in that mark make a hole, take it off, apply the crowned Trepan, holding

holding it obliquely so that you may see the Pyram. mid is in the hole, then raise it perpendicular upon the part; and clap the palm of the left hand upon the timber handle, and the forehead upon the hand with the right hand turn about the Arbor: By putting the forehead upon the hand you have two Advantages. The 1st is, you keep the Instrument very steady, and then you see that you cut equally. Turn the Instrument about from the right to the left, when the teeth of the Instrument have made a furrow in the bone, take out the Pyramid. Authors bid us go on very quick till we come to the Diploe, but in some Old Subjects this is quite obliterated, so that if we should go on rashly, waiting for it, we may plunge our Instrument into the Brain. While the piece is yet firm and the Instrument has not cut deep, we fasten the screw into it, which we may make use of afterwards to raise it, and so when unscrewed, the hole being made for it, it will easily fasten in the

244 the bone without applying much force, for if we should not make a hole for the Screw before we were going to try to draw out the piece, we would run the hazard of depressing it upon the Brain. When the Bone is near cut thro, which we judge by the deepness the Instrument has gone, and that there is but a thin Lamella, then rather as run the risque of wounding the Dura Mater by the Instrument, we try to raise the piece by the Screw, or Levator, not pressing sore upon the Bone, if it be broke at the edge of the perforation.

If the flux of blood be troublesome, when come to the Diploe, pour in some hot Spt. Vin. at the Orifice, which will make the vessels constrict themselves.

If it be depressed near the Orifice, raise it with the Levator, but do not make the other side of the Orifice the Fulcrum, for then you might come to depress or fracture it in raising the
other

other, but without letting the Levator rest upon it ^{245.}
support it with your Fingers, and raise the
Bones.

The Patient must get softening weak Diet to attenuate the Liquids, and proper Evacuatives that the extravasated Liquids may be taken up and thrown out at the Emunctories.

After the Incision made with a straight Bistoury he either uses a crooked Needle, without dissecting the Artery from the Parts (but take care to shun the Nerves) he thrusts it thro' below it, and makes the Ligature, or he dissects it from the Parts, and uses Mr. Petit's Needle. He threads it with three threads, the one he ties above, the other below, and the third he leaves in case there be need for it, he forbids to meddle with the threads and bolsters that they are tied on, but allow them to fall off of themselves —

Suture of the Tendon —

This Operation is most commonly done on the
Extensors

246. Extensors of the Fingers; If the Tendon be drawn
far up, he bids with a pair of Scissors make In-
cision in the Skin, and with a pair of Forceps take
hold of it, he uses two round crooked Needles thread-
ed on one waxed Thread, pulls one of them thro' that
Extremity of the Tendon that is attached to the
Muscle, not exactly in the middle of the Tendon,
but a little to a side to leave room for the other
Needle. He thrusts it from within outwards, he
then takes hold of the other extremity, for they
can't both be pierced thro' at once, and thrusts
the Needle from within outwards, then takes the
other needle, thrusts it in that Extremity that
is attached to the muscle, leaving as much dis-
tance betwixt it and the perforation of the other
as betwixt this and the side of the Tendon,
thrusts it from without inwards and from
within outwards in the other, by this the two
ends of the thread are in one side of the Tendon
Before you draw the Thread close thro' put in
a Peg

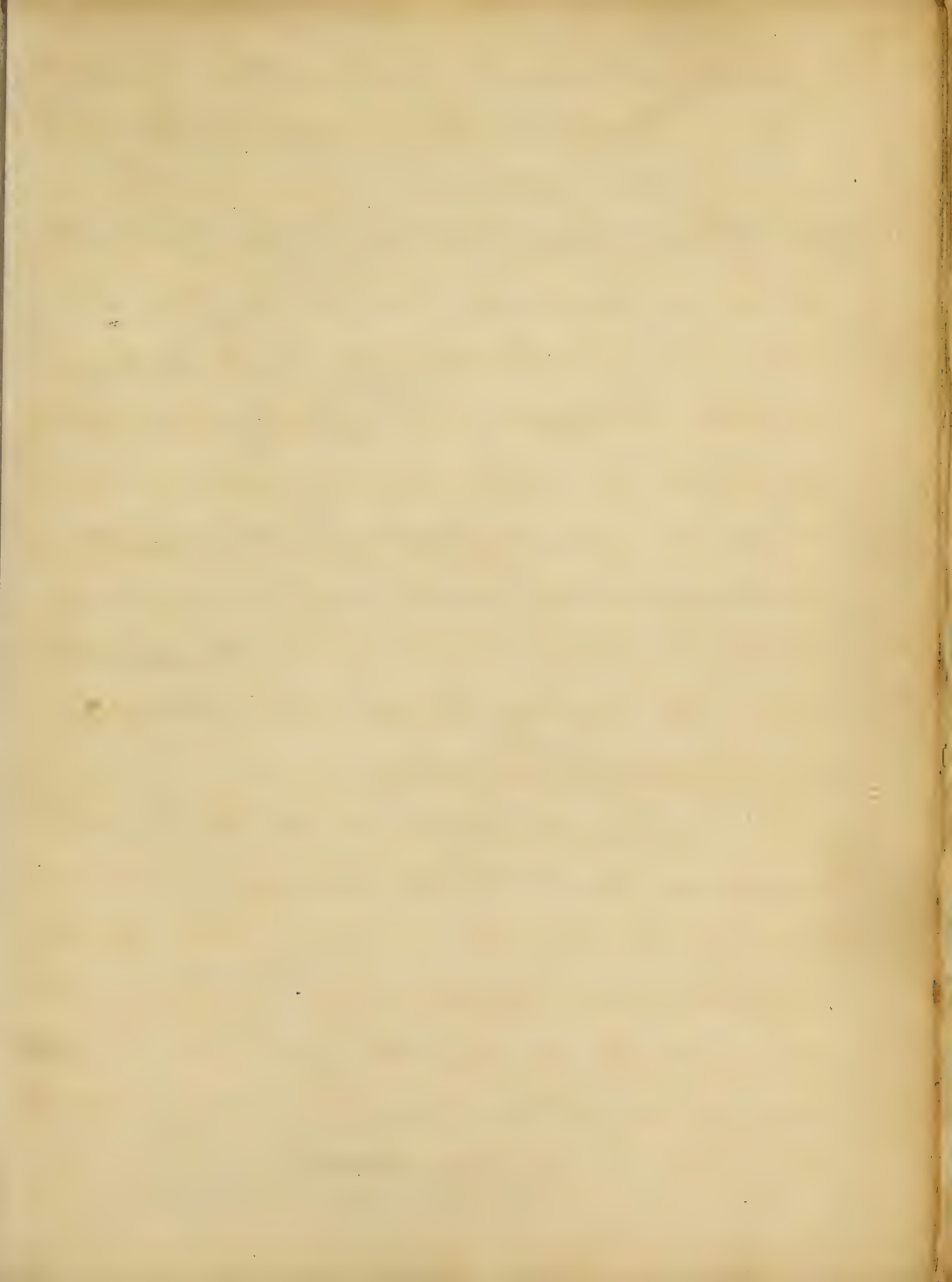
a Peg of wax Cloth between the two perfora. 247
tions of the upper Extremity, which is to hinder
the thread from cutting the Tendon, before you
tie a knot, put in a Peg as in the other Ex.
tremity, be sure to bring the two Extremities
to touch, drop some Spiritous medicine on
the Tendon, let no oily or watery medicine
come near it, fill the rest of the wound with
Digestives, keep the fingers and Wrist ex-
tended, during the whole time of the Cure.

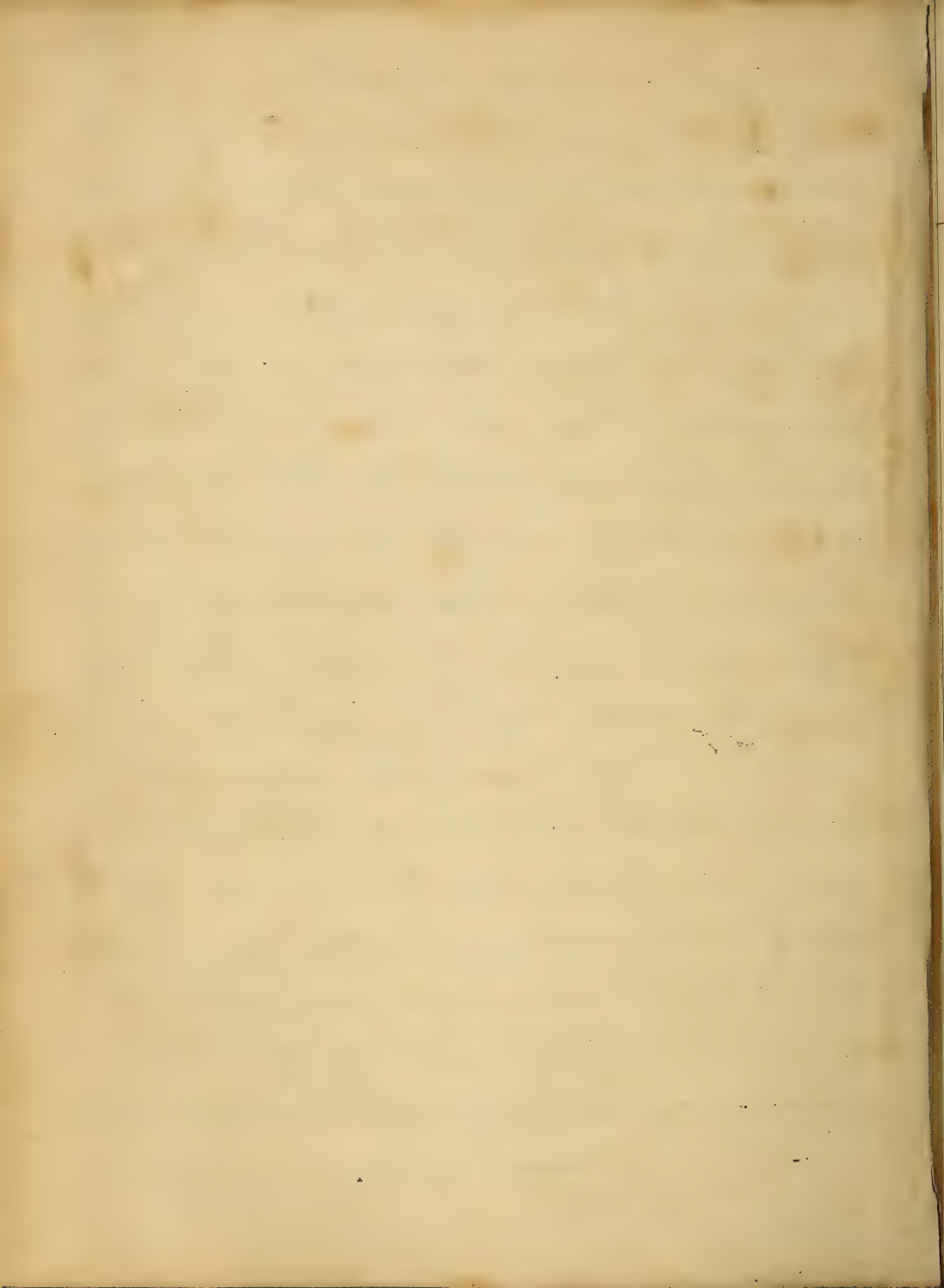
Amputation

He differs nothing in the Amputation from
Garangeot, only he notices, that by the retract-
ing of the parts, sometimes two, three, or four
Inches of the bone will be left bare, so that
often before the flesh can be brought over it,
the Patient turns Consumptive or Plectic,
therefore he is of opinion, rather to saw off
that part of the bone, after the parts have
retracted

248. retracted as much as they will do, by which the Cure would be much promoted and the other Accidents prevented. If the Weather be hot, then it should be dressed every day, but if cold or in Winter, then once in three or four days is sufficient, for by oft dressing we take away the Pus, which when good is one of the best Balsams for Wounds, provided it be not left too long on, for then by its Acrimony it frets the parts. When it begins to do this, we know by its itching, and if we delay the dressing longer, then it creates Inflammation and pain —

He is of opinion that Wounds should not be dressed too oft. He thinks the only part for leaving the Lamb or piece of flesh to cover the Stump is in amputating the finger when it is sawn off. for there the Vessels are but small, and need no strong Compression so as to mortify the part —





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